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The nonprofit sector is an important part of the U.S. economy as an estimated 2.3 million non-profit organizations contributed \$804.8 billion to the gross domestic product (GDP), approximately 5.5% of GDP (Roeger, Blackwood, & Pettijohn, 2012). Significant monetary investments and expenditures are made by these organizations. Non-profit organizations reported \$1.51 trillion in revenue, \$1.45 trillion in expenses, and \$2.71 trillion in total assets (Roeger et al., 2012). Many non-profit organizations use donated funds to address complex social problems such as education inequality, financial instability, and limited access to health care services. To impact change in these social areas, non-profit organizations operate within a complex business environment characterized by a significant reliance on volunteers, collaboration with other non-profit organizations, and the pursuit of community-driven strategic objectives.

The contextual factors that characterize non-profit organizations can have an impact on the way information systems (IS) are integrated within organizational practices and on how these organizations can use IS effectively to achieve business goals (Zhang et al., 2010). Yet, IS research within the non-profit setting is considerably limited (Zhang et al., 2010) and the extent of the impact of these contextual factors is unknown. Further, understanding how non-profit organizations gain value from IS in the non-profit environment has also been neglected in academic literature. Typical terms associated with IS business value research, such as impact on productivity, on market performance, or on economic growth (Schryen, 2013), are not applicable in the non-profit business

environment. Non-profit organizational performance is dualistic in nature, primarily focusing on the attainment of various social goals within a particular community in addition to traditional financial measures (Zmud, Carte, & Te'eni, 2004). Therefore, an alternate conceptualization of IS business value and its relationship to organizational performance is necessary when examining IS in non-profit organizations.

This multi-method dissertation aims to address the aforementioned issues by focusing on the role of IS in non-profit organizational practices to examine how IS business value is derived in the non-profit context and its impact on non-profit organizational performance. We employ an alternate approach to examining IS business value through the usage of the knowledge-based view of the firm as the theoretical base. This divergence from previous studies which focus solely on the resource-based view of the firm provides us with an entirely new avenue for examining IS business value in the non-profit organizational context.

First, within the Introduction, we provide a detailed explanation of the contextual factors in the non-profit context. Second, we provide a thorough literature review on IS business value and discuss the difficulties in directly applying it in the non-profit organizational context. Third, we argue for reconceptualizing IS business value using the knowledge-based view of the firm as the theoretical base. This provides us with a firm ground upon which we can conduct the three studies of this dissertation.

The research detailed was conducted at two organizations: United Way of Greater Greensboro (UWGG) and United Way of Central Carolinas (UWCC). Study 1 employs an action research approach at UWGG where, through collaboration with key employees,

practical solutions were developed to address IS related issues faced by the focal organization. More specifically, we focused on the utilization of the Enterprise System in an organizational practice and derived theoretical insights on IS business value through integrating Practice theory and Process Theory in the action research approach.

Study 2 employs case study methodology to examine business intelligence (BI) practices at UWCC. We provide background on BI usage in the for-profit organizational context and highlight the lack of research in the non-profit organizational context. We then examine BI from a process perspective and theorize on the value that is derived from the organizational utilization of an integrated data system. We draw from intellectual capital research, a core concept based on the knowledge-based view of the firm, to examine how BI provides UWCC with new knowledge on the impact of their programs in the community. We theorize on non-profit IS business value through examining the relationship between BI-facilitated Intellectual capital and its resultant impact on the non-profit's social goal.

Study 3 provides a comparative analysis of the role of IS in the social goal strategies employed at both UWGG and UWCC. Using SWOT (strengths, weaknesses, opportunities, and threats) analysis, we examine the favorable and unfavorable aspects of how information systems are utilized in each organization's social goal strategy and provide prescriptive insight into how non-profit organizations can transition towards better strategic IS utilization. Lastly, we conclude this dissertation with a brief summary of salient points, including the dissertation's contributions to research and practice and a discussion of future research.

Overall, this three study dissertation provides a holistic view of the role of IS in non-profit organizational social goal strategies and how non-profits derive value from their information systems. This dissertation fills gaps in research on IS business value by reconceptualizing it from a knowledge-based view of the firm, applying it in the non-profit organizational context, and developing theoretical insights on it from multiple perspectives. We make significant contributions to literature in management, organizational behavior, and information systems through our focus on IS usage and utilization in non-profit organizations. This dissertation is one of the first studies to examine non-profit IS organizational practices in situ, provide practical insight to the role of IS in non-profit social goal strategies, and develop theoretical insights into how non-profits utilize and gain value from information systems.

RECONCEPTUALIZING INFORMATION SYSTEMS BUSINESS VALUE IN
THE NON-PROFIT ORGANIZATIONAL CONTEXT

by

Richelle Lucy Oakley

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Approved by

Committee Co-Chair

Committee Co-Chair

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To Ricardo and Sandra Oakley, my loving and supportive parents.

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of
The Graduate School at The University of North Carolina at Greensboro.

Committee Co-Chair _____
A.F.Salam

Committee Co-Chair _____
Lakshmi Iyer

Committee Members _____
Julie Brown

Kathy White Loyd

Date of Acceptance by Committee

Date of Final Oral Examination

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CHAPTER I

INTRODUCTION

Dissertation Overview

For-profit organizations have acknowledged that there are significant benefits that can be gained from closely mapping critical business practices and processes with their IS investments. Organizations are able to visualize entire work processes and virtually collaborate in ways that were not possible a few years ago (Zammuto et al., 2007). Yet, non-profit organizations, with smaller budgets and altruistic staff, have not taken full advantage of these types of benefits that information systems (IS) can provide. This form of inequality in the abilities of organizations to utilize technology strategically has been characterized as a second-order effect of the digital divide, termed an organizational divide (Dewan & Riggins, 2005). Research on technology use in non-profit organizations show that typically non-profits have sufficient IT but lack proper utilization of the technology (Hoehling, 2013). To facilitate the more efficient and effective use of IS in non-profit organizations, it is imperative for IS researchers to examine *how* non-profits can strategically utilize IS and what benefits result from its usage. The overarching goal of this dissertation is to do just that – understand how non-profit organizations use information technology in a strategic manner to support their social goals.

Few researchers have focused in-depth on the IS impacts felt by non-profit organizations. Zhang et al. (2010) state that “academic research in [the non-profit] sector is considerably limited.” Richardson, Kettinger, Banks, and Quintana (2014) highlight that there is potential for IS research to explore the relationship between IT and organizational performance in social enterprises and non-profits. Improvements in organizational performance as a result of technology investments and usage is called IS business value (Melville, Kraemer, & Gurbaxani, 2004). Information System (IS) business value is a central IS concept that has been widely studied over the years.

Prior research on IS business value has been assessed using the resource-based view of the firm (RBV) as the supporting theoretical base for how organizations behave. RBV originated from an economically oriented view of an organization, focusing on how organizations operate within a competitive environment to obtain a sustainable competitive (Barney, 1991; Barney, Wright, & Ketchen, 2001). However, non-profits do not operate in the same competitive environment as for-profit organizations, causing issues when researchers attempt to apply IS business value in the non-profit context. Thus, we direct our focus on an alternate theoretical base – the knowledge-based view of the firm – to provide us with a better ontological ground upon which we can develop our theoretical examination.

The organizations that are examined in these studies are typically for-profit companies that have significant resource availability and encourage innovative, and sometimes risky, initiatives in order to maintain a competitive advantage. The work practices of for-profit organizations reflect these strategic initiatives as technology is

deeply imbedded within core business processes (Zammuto, Griffith, Majchrzak, Dougherty, & Faraj, 2007). Currently, there is a lack of research on how IS business value is generated in the non-profit organizational context. This dissertation aims to add to knowledge on how non-profits utilize and derive value from IS.

Non-profit organizations (NPOs) focus on real-world social problems – defined as “phenomena that have a serious negative impact on sizable segments of society” (Weick, 1984). Examples include education inequality, financial instability, and limited access to health care and related services. NPOs are inherently different from the typical for-profit businesses that play a central role in much of IS research (Zhang et al., 2010). NPOs focus on identifying and supporting the solutions that address the root causes of social problems, whereas for-profit organizations typically focus on performing well in their competitive market. NPOs constantly struggle to maintain a balance between the organization’s social goals, which are specified objectives that address social problems in a community, and its financial bottom line (Zmud, Carte, & Te’eni, 2004). This duality can impact decision-making around IS investments, can impact the ways in which technology is used and valued, and can impact the organization’s culture as a whole. For example, many non-profits haven’t even adopted the common practice of designating a portion of the budget for training staff on how to effectively use technology (Hoehling, 2013). These strategic decisions on funding and supporting the use of organization IS resources can impact organizational performance (Melville et al., 2004). Even as Gartner forecasts 2013 worldwide enterprise IT expenditures to increase by 4.1% to \$3.8 trillion (Gartner, 2012), NPOs consistently spend about 1%-2.2% of their operating budget on

IT spending (Hoehling, 2013), as all other revenues are focused on supporting intervention programs.

Researchers have urged for more research on IS business value (Barua et al., 2010; Melville et al., 2004; Schryen, 2013; Soh & Markus, 1995). Schryen (2013) highlights the inconsistencies in prior research on IS business value, ranging from issues with the conceptualization of the IS business value construct to research not considering the types of environmental factors that are considered to have an impact on IS business value. As such, there is much concern on the way organizational performance is understood and the link between IS business value and organizational performance (Melville et al., 2004; Schryen, 2013) in the for-profit organizational context. There is significantly less that is known about IS and its relationship to social goal organizational performance in the non-profit organizational context.

Additionally, as IS continues to become more integrated within organizational practices, it is becoming more difficult to truly understand how IS relates to organizational performance. The relationship between IS and organizational performance is particularly difficult to conceptualize for non-profit organizations focus on social goal achievement, rather than prioritize traditional financial or productivity-related measures of organization performance. Extant research on IS business value has shown that through targeted examinations of IS use, researchers can observe and report on the impacts that are felt at the individual-level, business process-level, or the organizational-level (Melville et al., 2004; Schryen, 2013; Soh & Markus, 1995). Thus, we aim to better understand how non-profit organizations strategically utilize IS to support the

achievement of their social goals, and how that utilization generates value for the organization.

This multi-method dissertation aims to examine the contextual complexity of the role of IS in the non-profit organizational practices and to examine how non-profits derive value from information systems. In this Introduction chapter, we review the literature on the economic, social, and organizational factors in order to highlight the unique and highly contextual nature of non-profit organizations. For example, some contextual factors include the characterization of non-profit employees, heavy reliance on volunteer staff, financial constraints, and NPOs having to manage multiple stakeholders. These contextual aspects are what distinguish non-profit organizations from for-profit organizations and are related to the difficulties in the assessments and application of IS business value in the non-profit context. As a result of their atypical business model, there is a great need to understand the ways in which information technology (IT) and IS are utilized within the non-profit organizational environment.

Through attempting to understand the technology utilization efforts of non-profits, we decided to re-evaluate the traditional conceptualization of IS business value. We then employed an alternate approach to examining IS business value through the usage of the knowledge-based view (KBV) of the firm as the theoretical base. We discuss the core concepts of KBV and how they are particularly relevant in the non-profit organizational context. This provides us with an entirely new avenue for examining IS business value in the non-profit organizational context.

The research detailed in this dissertation was conducted at two organizations: United Way of Greater Greensboro (UWGG) and United Way of Central Carolinas (UWCC). Study 1 employs an action research approach at UWGG where, through collaboration with key employees, practical solutions were developed to address IS related issues faced by the focal organization. More specifically, we focused on the utilization of the Enterprise System in an organizational practice and derived theoretical insights on IS business value through integrating Practice theory and Process Theory in the action research approach.

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Study 3 provides a comparative analysis of the role of IS in the social goal strategies employed at both UWGG and UWCC. Using SWOT (strengths, weaknesses, opportunities, and threats) analysis, we examine the favorable and unfavorable aspects of how information systems are utilized in each organization's social goal strategy and

provide prescriptive insight into how non-profit organizations can transition towards better strategic IS utilization. Lastly, we conclude this dissertation with a brief summary of salient points, including the dissertation's contributions to research and practice and a discussion of future research.

Overall, this three study dissertation provides a holistic view of the role of IS in non-profit organizational social goal strategies and how non-profits derive value from their information systems. This dissertation fills gaps in research on IS business value by reconceptualizing it from a knowledge-based view of the firm, applying it in the non-profit organizational context, and developing theoretical insights on it from multiple perspectives. We make significant contributions to literature in management, organizational behavior, and information systems through our focus on IS usage and utilization in non-profit organizations. This dissertation is one of the first studies to examine non-profit IS organizational practices in situ, provide practical insight to the role of IS in non-profit social goal strategies, and develop theoretical insights into how non-profits utilize and gain value from information systems.

Unique Aspects of Non-Profit Organizational Context

In order to begin our discussions, it is necessary to first clarify and discuss a few of the unique aspects of the non-profit organizational context. Non-profit organizations (NPOs) focus on real-world social problems – defined as “phenomena that have a serious negative impact on sizable segments of society” (Weick, 1984). Examples include education inequality, financial instability, and limited health care access and services. Non-profits are defined as 501(c)(3) public charities, organizations active in the arts,

education, health care, human service, and other organizations to which donors can make tax-deductible contributions ("Exemption Requirements - 501(c)(3) Organizations," 2014). In the United States, there are 2.3 million non-profit organizations that employ 13.7 million people and contribute \$804.8 billion to the gross domestic product (GDP), totaling approximately 5.5% (Roeger, Blackwood, & Pettijohn, 2012). These non-profit organizations generate \$1.51 trillion in revenue, \$1.45 trillion in expenses, and \$2.71 trillion in total assets (Roeger et al., 2012).

Research has shown that non-profits are not oriented towards a competitive market as many for-profits, but rather they are oriented towards a societal market where the focus is on serving and satisfying a human need (Duque-Zuluaga & Schneider, 2008). Non-profits aim to “achieve small scale change directly through projects” or “achieve large scale change promoted indirectly through influence of the political system” (Willets, 2006). Research has found that factors in the non-profit’s organizational and social environment impact the effectiveness of IS in non-profits (Zhang et al., 2010), shown in Figure 1. The research highlights salient organizational factors that can impact the non-profit IS effectiveness as financial budget constraints, non-profit culture and employees, and the nature of non-profit goals and organizational performance. The research also discusses the social environment factors that can have an impact including external stakeholders and changes in the non-profit business environment. A review of these factors highlights the need for IS research studies in the non-profit context.



Figure 1. Conceptual Framework for Non-profit IS Effectiveness – Adapted from Zhang, Gutierrez, and Mathieson (2010)

Organizational Environment Factors. There are many challenges that NPOs encounter as the social, political, and economic environment that they operate within is in constant flux. NPOs are beholden to many outside entities for funding which enables the organization to sustain itself (Duque-Zuluaga & Schneider, 2008; Zhang et al., 2010). For example, as the economy has had a significant downturn reducing the volume of donors, many NPOs are struggling to handle the financial uncertainty that has arisen (Stringfellow, 2012). The financial uncertainty arises from the sources of funding, including donations, which increased by 7.5% between 2010 and 2011; government funding, which have faced severe budget cuts (Perry, Preston, & Wallace, 2012; Stringfellow, 2012); and employee contributions, which have decreased due to the

downturn in the job market. These financial constraints can impact the organization in many ways, such as limiting opportunities to provide necessary training, to update outdated systems, to identify opportunities for innovation, to recruit new employees, and to pay top performers accordingly.

NPO employees are characterized as complex because they are intrinsically and extrinsically motivated in different ways than those that work at for-profit organizations (Zhang et al., 2010). Many non-profit employees believe they are doing a great good for society and take low paying positions as a result. Non-profits rely heavily on non-paid labor – volunteers – for critical strategic processes within their organizational practices (Duque-Zuluaga & Schneider, 2008). Unfortunately, non-profits are also plagued with high-turnover in many key positions (Lettieri, Borga, & Savoldelli, 2004). This creates the necessity to support knowledge management practices within non-profit organizations through established procedures and guidelines, ideally supported by information systems. However, in the non-profit world, information systems are not a priority. Many non-profits express that the technology within the organizations is sufficient, yet the staff are not technically inclined, thus reducing the benefits that could be achieved from its use (Hoehling, 2013). It would be oversimplifying things to say that NPO employees view IS as a ‘burden’ (Zhang et al., 2010) as they are more likely to view IS as useful, but complex and time consuming to implement. However, as Zhang et al. (2010, p. 7) noted, “the employees’ interpretations of the system play important roles in shaping how employees interact with IS.” Further, the employees that choose to work in non-profits are typically volunteers or low-paid staff that may not be “skillful IS workers” (Zhang et

al., 2010). Thus, the interaction between the users of a system is influenced by the working environment, in this case a non-profit organization.

Many non-profits are small- to medium-sized organizations that operate with less than 30 employees. Research has shown that small organizations invest and adopt technology in a different way than larger organizations (Dewan & Riggins, 2005). Cragg and King (1993) found that inadequate resources and limited technical expertise inhibited technology adoption in six small manufacturing organizations. Iacovou, Benbasat, and Dexter (1995) found small firms are limited in their ability to adopt and effectively use IS due to the extent to which the organization is ready for technological integration (organizational readiness) and the lower perceived benefits of the IS integration. Non-profit organizations suffer from these issues related to technology adoption and usage as a result of their small organizational size.

For NPOs, there is a dualism in organizational priorities, between a social goal and financial bottom line, which can create conflict in resources allocation, decision-making, and other operational and strategic activities (Zmud et al., 2004). These firms have a different set of outcomes that are used to measure their performance (Zmud et al., 2004), as opposed to more traditional financial measures. For example, NPOs may quantify the impact they have within a particular community through service-related performance measures (O'Neill, Young, & Ylvisaker, 1988) such as number of families assisted on a yearly basis. The organizational outcomes for NPOs are typically centered around goals that are “altruistic, qualitative, long term, intangible, people-oriented, and non-monetary” (Buckmaster, 1999, p. 187). As opposed to financial measures, these

social outcomes may influence the way in which organizations engage with ICT.

Whereas financial measures are associated with efficiency, productivity, and growth, social outcomes are not easily narrowed down to a numerical representation.

NPOs aim to “achieve small scale change directly through projects” and/or “achieve large scale change promoted indirectly through influence of the political system” (Willetts, 2006). Other larger non-profits focus on supporting multiple non-profit agencies to achieve small scale change through projects, collectively impacting a particular community. Assessing organization performance in NPOs is a complex endeavor. Organizational performance in these NPOs is assessed through the impact that selected programs have made within the community. Non-profits have minimal control on the external factors that plays a role in the extent of the impact programs have on recurring social problems.

Social Environment Factors. The core business of NPOs centers on social issues that do not have a single or simple solution along with varying driving forces that perpetuate their existence. The complex nature of many social problems requires a solution that involves “the support of coalitions of political and financial advocates... [and] execution by skilled and pragmatic actors” (Majchrzak, Markus, & Wareham, 2012). For example, organizations that focus on improving education among poor populations focus on ‘mentoring, tutoring, and after-school and summer care programs.’ These various activities combined provide a unique solution that, over a period of time, aid in ‘increasing likelihood of success in schools for disadvantaged students.’ NPOs typically operate within unique external environments and engage in internal process and

practices that are different from private organizations, a distinction that has been well documented in IS research (Zmud et al., 2004). For example, in disaster relief environments, “inefficiencies can cause considerable consequences for human life, economic sustainability, and physical infrastructure” (Oakley, 2012, p. 184), as opposed to the types of consequences faced by for-profit organizations. These organizations must stay focused on the task at hand to ensure their social goals are achieved. More recently, there has been renewed pressure for operational accountability and efficiency on non-profits (Lettieri et al., 2004) as a result of highly publicized charities that mishandle and abuse finances. Transparency in operating procedures, allocation of funds, and the impact of programs has become a priority for many non-profits.

Further to address these complex social issues, NPOs operate within a multi-faceted working environment where they regularly collaborate with other NPOs (Perry et al., 2012). In this sense, NPOs collaborate with their ‘competitors’ in order to make headway in addressing the social problems at hand (Tierney, 2011). These alliance setups are another aspect of NPOs that adds to the contextual factors surrounding IS usage and business value. Many NPOs partner with other agencies in order to effectively address the recurrent problems that are present within various communities. This collaboration amongst NPOs requires a high level of communication and coordination as various initiatives are implemented, maintained, and measured. Additionally, NPOs typically create their social goals by addressing concerns within specific communities, ensuring that their programs are relevant to the needs of affected populations. Allowing the voice of the community to play a key role in determining the focus areas of non-profit

organizations can add to the complexity of how NPOs manage and strategize around identified social goals and assess performance on those goals.

It has been noted that there are multiple changes occurring in the non-profit sector. The changing demographics of the donor population will require NPOs to operate in a different manner (Perry et al., 2012). For example, many non-profits solicit donations through workplace campaigns where employees can donate through their paychecks. However, as the nature of work has changed, NPOs lose donations once employees leave the workplace. This has shifted the focus from the workplace to the person as the main focal point for donations. Also, younger populations, such as Generation X and Millennials, are more interested in experiential philanthropy such as donating time through volunteering, rather than simply donating money. Additionally, the availability of low-cost technology and open source software has allowed for alternative means of donations to flourish, such as charities on internet-based platforms.

Altogether, the aforementioned organizational and social environment factors characterize the complexity that non-profits encounter while engaging in business. By focusing research efforts on the non-profit sector, we can better understand the impact these contextual factors have on the business practices of non-profits, as well as the impact on the role of information systems within those business practices. As IS has proliferated throughout the business world, IS has provided organizations with benefits that support the organization in its strategic actions, evidenced through improvements in organizational performance (Melville et al., 2004; Schryen, 2013). The next section

discusses more in-depth how these contextual factors may impact how non-profits utilize and derive value from the IS within the organization.

Research Gaps

Zhang et al. (2010) states that “academic research in [the non-profit] sector is considerably limited, especially theory-building efforts. Very few researchers have focused in depth on the impacts that the complex business environment have on established organizational theories. IS researchers have highlighted the importance of “develop[ing] better theories about the precise nature of the role of ICT in complex social problems” (Majchrzak, Markus, & Wareham, 2012). For example, much of the research has examined the role of IS as a support function in organizations that address complex social problems, such as collaboration efforts between various agencies in disaster relief efforts (Bajpai, Tchouakeu, Maitland, Zhao, & Tapia, 2010) and knowledge management within humanitarian organizations (Tatham & Spens, 2011). Research has yet to examine how NPOs experience integration with technology in the same way as they examine it in the for-profit sector. NPOs around the world are currently integrating technology within their organizational practices and researchers are just now beginning to examine the phenomenon (Richardson et al., 2014). Additionally, researchers have urged for more research on IS use and business value (Barua et al., 2010; Melville et al., 2004; Schryen, 2013; Soh & Markus, 1995) and very little is known on the impact of the contextual factors of organizational performance, such as achieving social goals, on IS use and value.

Schryen (2013) highlights the inconsistencies in prior research on IS business value, ranging from the conceptualization of the IS business value construct to the types of environmental factors that are considered to have an impact on IS business value. Researchers have begun to agree that IS business value is not a state that one can achieve, but rather a process through which information systems become an integral part of business processes thus improving its value to the organization (Soh & Markus, 1995). However, the process that companies engage in to generate IS business value has been minimally studied though it has repeatedly been identified as an area of research interest (Dedrick, Gurbaxani, & Kraemer, 2003; Kane & Alavi, 2007; Melville et al., 2004; Mooney, Gurbaxani, & Kraemer, 1996; Schryen, 2013; Soh & Markus, 1995; Zammuto et al., 2007). There is also much concern around the way organizational performance is understood and the link between IS business value and organizational performance (Melville et al., 2004). As IS continues to become more integrated within organizational practices, it is becoming more difficult to truly understand how IS relates to the organization's performance. This relationship is particularly difficult to conceptualize for non-profits that do not prioritize traditional financial or productivity-related measures of performance, but focus on social goals achievements.

Practice theory has emerged as a way to examine the micro-dynamics that occur within an organizational context that result in specific organizational outcomes (Feldman & Orlikowski, 2011). These micro-dynamics are the specific actions that occur within an organization that, collectively, result in organizational outcomes. IS research has remained silent on how IS plays a role in non-profit organizational practices. As with

many other theoretical viewpoints, the majority of organizations that are studied from the practice perspective are in the for-profit sector. Understanding how non-profit organizational practices can be influenced, changed, supported by or inhibited by IS has yet to be studied. Through our in-depth examination of the information systems at two non-profit organizations, we are able to shed some light on a preliminary understanding of how IS. Thus, the intersection of information systems and the unique nature of the non-profit organizational context provides fertile research ground.

Research Design

This research project started in a non-traditional way. In a 2013 presentation on research methods (Melville, 2013, August), a renowned IS researcher discussed the traditional way of doing research, spanning from developing a research question, theory, and hypotheses to data collection, analysis, and reporting. He also suggested that there were at least three variations to the *practice* of research that he had encountered over his many years of conducting research, including (1) topic-data – where the topic of interest drives the research methodology, data collection and additional research steps, (2) topic-collaborator – where joint academic interests on a particular topic lead to research, and (3) reloaded-reject – where a research project that was rejected from a journal is reassessed from a new theoretical standpoint. Each of the variations of research were just as valid as the traditional way, all leading to publications in top IS journals. Though minimally discussed in the academic world, the realities of the *practice* of completing academic research highlight a diverse set of legitimate paths to conducting research.

This dissertation chronicles the research conducted which more closely follows the “Topic-data” research path discussed by Melville (2013, August). Initially, the primary researcher had a general interest in researching IS use in non-profits, specifically a real-world technology-related problem that a non-profit was currently facing. Dr. Kathy White Loyd, a committee member, provided the primary researcher with an introduction to the President and CEO of United Way of Greater Greensboro (UWGG). Through this opportunity, the primary researcher developed a working relationship with the organization and was provided internal access to the organization.

UWGG has experienced significant turnover in the last 2 years. Many staff members, including those in managerial positions, have less than 5 years of tenure at the organization. In the beginning of 2012, UWGG contracted a consulting company to identify the major issues in their organization’s operations and help produce a high-level plan to improve those operations. Interestingly, the final report stated that employees wouldn’t buy into any changes unless they understand the benefits for them, for their department, and for the organization. Technology issues ranked last in importance, though data management ranked first as a major priority. The organization created a collaborative team to address the issues identified by the consultants and they are actively working to make changes within organizational operations. Thus, the employees are primed for change and are open to improving their processes in order to gain value from the information systems that they use. Additionally, much of IS research has not focused on the inner workings of non-profit organizations. Examining the practices that occur in the non-profit organizational context will provide insight into better understanding how

IS utilization and how it is valued. Considering the aforementioned discussions on IS business value and organizational practices, we developed Study 1 out of the immediate IS needs of UWGG, specifically in the Community Impact and Investment department (discussed in depth in Chapter 3). The research question for Study 1 is:

- (1) How does integrating an information system into a non-profit organization's practice improve the value that is derived from the information system?

In order to improve current IS practices and achieve change within the organization, we engaged in an action research approach. Study 1 describes an action research study that was conducted at the United Way of Greater Greensboro (UWGG) in Greensboro, NC. Action research is a five-staged intervention process which includes diagnosing problems, planning actions to resolve problems, enacting in the identified solutions, evaluating the impact of the solutions, and expressing the lessons learned to the organization, the collaborative team, and the research community (Baskerville, 1999; Baskerville & Myers, 2004; Susman & Evered, 1978). Practice theory highlights examining the micro-dynamics that occur within an organization in order to assess organizational outcomes. Action research allows the researchers to become intimately involved within the organization and its practices in order to effect change to improve the status quo. In Study 1, we focused on integrating information systems into a core practice of UWGG's Community Impact and Investment department – the Program Investment Practice. This allowed the primary researcher to examine in-depth how UWGG could better integrate information systems into their work practices, what challenges arise in that situation, and how the department gained value from the

technological improvement in their business processes. In addition to the practical benefits that UWGG gained from this action research, there were also academic insights that were gained regarding the in-depth process that is involved in non-profits gaining business value from their technology investments.

UWGG's President and CEO was also interested in transitioning to higher-level utilization of IS in assessing their program impact in the community. United Way Worldwide (UWWW), the parent company of UWGG, has been encouraging all of its affiliates to move towards a Collective Impact strategic approach, where the affiliate collects the same data from all partner non-profit agencies to be able to assess the affiliate's collective impact on a particular social issue. They encourage their affiliates to "aspire to drive collaborative community change" ("Charting a Course for Change: Advancing Education, Income, and Health through Collective Impact," April 2013) and Collective Impact is a way to do just that. This initiative is a form of business intelligence – where data is collected, analyzed, and applied – and required a significant investment in IS. Business intelligence is emerging as a new area for non-profits to better assess the impact of their initiatives in the community. This business need for understanding how to engage in business intelligence practices at UWGG led the primary researcher to conduct research at another United Way affiliate – United Way of Central Carolinas (UWCC) – which was already engaged in the Collective Impact strategic approach. This led to the development of Study 2, which focuses on how non-profit organizations develop and utilize business intelligence in order to support their social goals. Therefore, the research question in Study 2 is:

(2) How does a non-profit organization utilize business intelligence to support the achievement of its social goals?

Study 2 describes a case study that was conducted on the United Way of Central Carolinas (UWCC) in Charlotte, NC. This study focuses on the development of a business intelligence process which primarily utilizes an integrated data system to allow UWCC to better assess and improve the impact that their programs are making in their local community. The concept of Collective Impact by non-profits is a major undertaking that requires collaboration with numerous entities and significant IS investments for multiple stakeholders. The results of this study highlight the delicate nature of data collection and analysis for organizations that operate within the social mission realm. This study also highlights the need for more research focus on the complex nature of integrated data systems in the non-profit sector. Ultimately, this study provides some clues into understanding the different types of value that IS can provide in the non-profit business context through an examination of the various factors that support its development and application.

Lastly, the primary researcher had collected data from both UWGG and UWCC regarding their IS practices and how it related to the organization's efforts to achieve their social goals. In order to gain additional insight into the role of IS within the strategic social goal practices of non-profit organizations, we decided to engage in a comparative analysis of the salient aspects determined from the evidence collected at each site. The insights from this study allow non-profits to understand the role of IS in their social goal strategies and highlight any potential complications that they may

encounter in an effort to transition towards higher strategic IS utilization. This led to the research question in Study 3:

(3a) What are the common concepts and key differentiators in how non-profit organizations utilize information systems to support the achievement of its social goals?

(3b) What are the key implications and lessons learned for non-profits aiming to better utilize information systems to support the achievement of its social goals?

The third study describes a comparative analysis of the role of information systems in the strategic processes of UWGG and UWCC. As previously stated, United Way Worldwide (UWWW) has put forth an initiative for all United Way affiliates to transition to a Collective Impact strategy. During the research time period, UWGG was operating under a Common Outcomes approach (a pre-cursor to Collective Impact) and UWCC has already transitioned one of its three social issue areas to the Collective Impact approach. Using data collected from the first two studies, we examined the role of IS in each organization's social goal strategy. Through SWOT (strengths, weaknesses, opportunities, and threats) analysis, we highlighted related favorable and unfavorable aspects from an internal and external perspective. We end Study 3 by providing prescriptive insights for non-profits (including other United Way affiliates) aiming to transition towards utilizing IS in a Collective Impact social goal strategy.

Figure 2 provides a graphical representation of the dissertation research design.

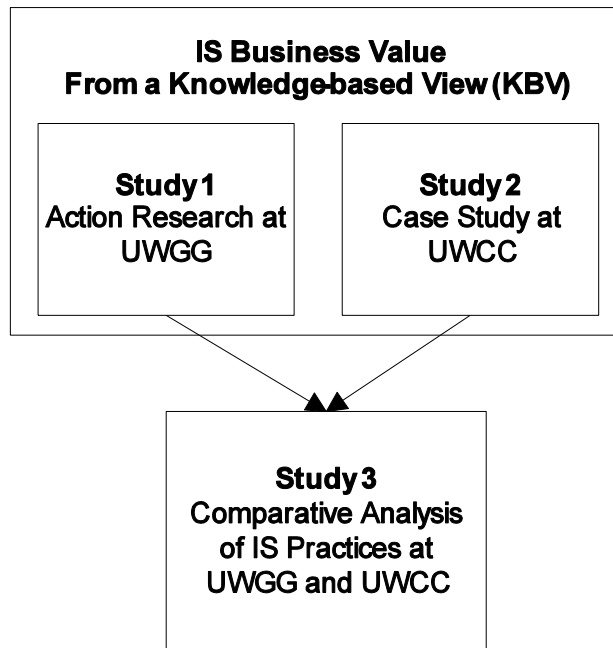


Figure 2. Dissertation Research Design

The overarching goal of this dissertation is to understand how non-profit organizations use information technology in a strategic manner to support their social goals. Rather than use the more general resource-based view of the firm as the supporting theory for IS business value, we use the more specific knowledge-based view of the firm which is more applicable in a non-profit organizational (Kong, 2008; Kong & Prior, 2008) context. Research has shown that of all the resources available to organizations, “value creation is increasingly dependent on the ... knowledge that an organization controls” (Kaplan & Norton, 2001; Kong, 2008). Specifically in the non-profit context, the success of organizational strategic goals is heavily reliant upon the knowledge that they gain and apply towards social problems in the community. The complexity of the social problems that non-profits focus on drives the need for more

knowledge to effectively address those problems. Without knowledge, non-profits are effectively ‘throwing darts in the dark’ when supporting programs that aim to improve the status quo in affected communities. In order to continuously impact change in communities through supporting social programs, non-profits need to constantly develop new knowledge on existing social problems and apply that knowledge in support of its strategic social goals. Using KBV as an alternate theory base provides new ground in the understanding of IS business value in support of organizations that are primarily situated in a knowledge intensive environment. NPOs are able to impact change on their social goals through developing and applying knowledge on the social problems that exist within a community. In the non-profit organizational context, IS can support knowledge creation, storage, and application if properly integrated within organizational practices. The efforts described in this dissertation aimed to support the organizational efforts of UWGG to improve their strategic utilization of IS, to examine the successful strategic utilization of IS at UWCC, and to identify lessons learned from insight derived from examining the role of IS in organizational practices at both focal organizations.

Research Settings

In order to provide a clearer understanding of the two focal non-profit organizations, this next section provides some background information on the non-profit sector in North Carolina and the United Way affiliates that were studied. Though the two organizations share a parent company, UWWW, they operate under a pseudo-federated organizational structure where each local office of United Way can strategically operate in the way that best works for their community. However, all United Way affiliates are

working to impact change in the same three social issues areas: Education, Health, and Income and Resources.

In North Carolina, non-profits provide 1 out of every 9 jobs and add \$38 billion into the economy every year (Heinen, 2013). There are over 10,000 organizations in North Carolina that are identified as 501(c) (3) and over 300 that put more than \$10 million each into the state's economy (Heinen, 2013). Due to population growth and economic stress, there are record numbers of North Carolinians experiencing social problems such as homelessness, lack of food, experiencing crisis situations, or financial problems (Heinen, 2013). Coupled with a decrease in charitable giving, non-profits in North Carolina are struggling to raise funds (Heinen, 2013) and are looking for ways to improve their operations to support their socially responsible efforts. Two organizations were chosen to examine information systems value in non-profit organizations.

The United Way of Greater Greensboro (UWGG) is a medium-sized, American, Southeastern non-profit organization located in Greensboro, NC. With 26 employees, UWGG has been in business for over 90 years under a well-known charitable brand and recently raised over \$11 million dollars in the 2013-2014 fiscal year. UWGG focuses on three major social problem areas: Education, Income and Resources, and Health.

Through developing its own initiatives and partnering with other non-profit agencies, UWGG supports numerous programs and activities that are directly aimed at supporting local communities in these three areas. Within each of the three social problems, there are specific objectives, strategies, and indicators (measures) that are used to assess intervention programs. There are four departments within UWGG. Community Impact

and Investment (CI) focuses on managing the selection, funding, and continuous support of intervention programs that align with the organization strategies and objectives.

Donor Relations focuses on actively engaging with individuals and organizations within the community to solicit donations to support the programs of Partner Agencies.

Marketing and Communications focus on crafting UWGG's message and engaging with the community to inform and share knowledge around the social areas of interest. Lastly, Finance manages the typical accounting functions that one would find in an organization.

The United Way of Central Carolinas (UWCC) is a medium-sized, American, Southeastern non-profit organization located in Charlotte, NC. UWCC has been in business for over 80 years under a well-known charitable brand and recently raised almost \$17 million dollars in the 2011-2012 fiscal year. Similar to UWGG, UWCC focuses on three major social problem areas: Children & Youth, Housing & Stability, and Health & Mental Health. UWCC serves five counties in NC – Anson, Cabarrus, Charlotte/Mecklenburg, Mooresville/Lake Norman, and Union county. UWCC collaborates with over 80 partner non-profit agencies to provide programs to address the three social issue areas in these five counties.

These two non-profit organizations provided fertile ground for theorizing on the nuanced nature of IS business value in non-profits. The next chapter discusses the literature on IS business value, highlighting the difficulties in applying the current conceptualization of it in the non-profit context. We also provide an alternative theory base that is more appropriate for non-profit contexts and allows for the examination of IS business value in the research domains.

IRB Exemption

An application for Institutional Review Board (IRB) Exemption was submitted to the Office of Research Compliance at UNCG. The application was reviewed by the IRB and identified as Study 13-0133. This study is exempted as it was determined to be “Research or Research-like Activity” that does not require IRB Approval.

CHAPTER II

INFORMATION SYSTEMS BUSINESS VALUE

IS Business Value Literature Review

There is a vast amount of literature on IS business value, spanning over a 20-year time period. Early studies highlighted the superior performance exhibited by organizations that invested in IT (Mukhopadhyay, Kekre, & Kalathur, 1995) and identified the inconsistent nature of associating IT investments with benefits to the organization (Brynjolfsson, 1993). Studies also focused on developing models to trace the path of IT investment to organizational outputs (Sambamurthy & Zmud, 1994). More recently, studies have focused on the ways in which organizations work together to create value (Grover & Kohli, 2012; Kohli & Grover, 2008). It has been suggested that there are contextual factors that impact the value generation process (Schryen, 2013) and these factors is what accounts for the differential results experienced by many organizations that invest in IT.

In order to review the outstanding literature on IS business value, we reviewed articles on IS business value. These articles were taken from the leading IS journals, including but not limited to, European Journal of Information Systems (EJIS), Management Information Systems Quarterly (MISQ), Communications of the Association of Information Systems (CAIS), Journal of the Association of Information

Systems (JAIS), and the Journal of Strategic Information Systems (JSIS). Articles selected included literature reviews on IS business value as they provided information on a collective set of articles, as well as attempted to organize them in a holistic manner. Articles also included those outside of the basket of IS journals that discussed IS business value in order to include perspectives from referent disciplines.

Research states that IS business value is derived from improved organizational performance as a result of technology investments and usage (Melville et al., 2004). The organizations that are examined in these studies are typically for-profit companies that have significant resource availability and encourage innovative, and sometimes risky, initiatives in order to maintain a competitive advantage. As such, keeping up with the latest technology trends can be costly. Gartner forecasts 2013 worldwide enterprise IT expenditures to increase by 4.1% to \$3.8 trillion (Gartner, 2012). Alternatively, non-profit organizations (NPO) consistently spend about 1%-2.2% of their operating budget on IT spending (NTEN, 2013), as all other revenues are focused on supporting intervention programs. NPOs tend to forego investing in recent advances in technology in favor of supporting the core operational and overhead functions of the organization (Stringfellow, 2012). This lack of focus on technology may be attributed to the unclear understanding of the value of information systems within the non-profit organizational structure.

Understanding the value of IS within organizations has been a constant struggle for businesses and academics alike (Melville et al., 2004). Much of the literature on organizations has focused on the ways in which for-profit organizations operate and how

investments in IS are linked to improved organizational performance. IS business value is derived from improved organizational performance as a result of technology investments and usage (Melville et al., 2004). Table 1 summarizes the literature review on IS business value research, highlighting the terms that are associated with IS business value and the identified gaps in research.

In order to understand how IS business value concepts are developed, many researchers start with selecting an appropriate theoretical foundation. According to Melville et al. (2004), prior IS business value researchers have assessed IS impacts from theoretical foundations in microeconomics, industrial organizations, sociology, and socio-politics. Most studies have focused on the resource-based view of the firm (Wernerfelt, 1984) where organizations derive a competitive advantage over their competitors through a unique combination of intangible and tangible resources (Barney, 1991). For example, there are numerous studies that have been dedicated to identifying how organizational capabilities are linked to an organization's competitive advantage in their marketplace (Cepeda & Vera, 2007; Teece, 2007, 2009; Teece, Pisano, & Shuen, 1997). Within IS literature, Bhatt and Grover (2005) examined the link between competitive advantage and a special set of capabilities, those linked closely with IT, within a sample of organizations from the manufacturing industry. Great strides have been made in understanding how these types of IT-capabilities have a relationship with an organization's competitive advantage, such as how certain IT investments can be a "source of differential advantage" while other investments are not (Bhatt & Grover, 2005, p. 272).

Schryen (2013) highlights the various levels of examination, or the units of analysis, chosen by IS business value researchers to assess the impacts of IS on organizational performance. He highlights the most common levels of analysis as “individual level, firm level, industry level, and economy level” (Schryen, 2013, p. 141), while promoting the inclusion of process-level improvements. Mooney et al. (1996) discuss the importance of understanding the process-level impacts of IS through further dimensionalizing organizational processes into those that focus on the execution of tasks (operational) and on the activities that support the execution of tasks (managerial). This allowed for an expanded understanding of the beneficial impacts of IS to the organization, including automational, informational, and transformational benefits. For example, understanding that integrating IS on a process-level can create empowerment benefits for the managerial staff as the IS allows for better management of work flows.

The careful selection of the level of analysis allows researchers to examine the multi-level effects of IS integration within the organization. For example, integrating IS within an organization’s processes has been shown to create individual level benefits, such as faster and easier access to information, and firm-level benefits, such as creating a competitive advantage and establishing inter-organizational relationships (Gregor, Martin, Fernandez, Stern, & Vitale, 2006). Further, Grover and Kohli (2012) highlight the emergent level of IS business value, where inter-organizational efforts leverage IT and create unique benefits that could not be obtained by any individual organization. Co-created value is a recent concept in IS literature as researchers move away from the

single-firm analysis which is not necessarily representative of the actual business environment that companies operate within.

Differential advantage, or improved performance, is typically understood in terms of market performance, accounting performance, innovation, and operations measures (Melville et al., 2004; Schryen, 2013). These measures range from productivity and efficiency measures (Melville et al., 2004) to profit ratios such as return on assets and market-oriented measures such as Tobin's q (Schryen, 2013). Other studies have identified the value of IS by examining the impact on operational and managerial aspects of business processes, resulting in terms such as effectiveness, creativity, competitive flexibility, or quality in decision-making (Mooney et al., 1996). These alternative conceptions of IS business value outside of economically-focused terms provide potential for the non-profit context. The next section discusses how conceptualizing organizational performance in the non-profit context differs from the for-profit context, and how we envisioned non-profit organizational performance.

Table 1. Summary of Literature Review of IS Business Value Research

Author (Year)	Theoretical Foundation	Level of Analysis	IS Business Value Terms/Phrases	Identified Gaps in IS Business Value Research
Schryen (2013)	Economics	Process, firm	Productivity, capacity utilization, product quality, customer satisfaction, production efficiency, consumer welfare, profit ratios, market-oriented measures	<ul style="list-style-type: none"> - Ambiguity in the conceptualization of the IS business value construct - Unclear understanding of IS business value creation process - Neglected disaggregation of IS investments
Grover and Kohli (2012)	Resource-based	Multi-firm	Transparency, transaction efficiency, distribution streamlining, knowledge sharing, reduced redundancy costs, affordable online interface	<ul style="list-style-type: none"> - Minimal literature on co-creation of IT value amongst multiple firms
Barua et al. (2010)	Economics	Firm	Productivity, process improvements (cycle time), profitability (return on assets), consumer surplus, supply chain improvements, inter- organizational innovation	<ul style="list-style-type: none"> - Traditional financial measures are inadequate to measure co-creation of IT value - Individual perceptions of IT value impact overall derived IT value for the organization - Need to look beyond economic impacts of technology and examine the actual usage and consequences of technology
Cao (2010)	Resource-based	Process, firm	Productivity, consumer value, performance improvement, process	<ul style="list-style-type: none"> - Holistic approach to understanding IT business value - Consider organizational factors impact

			improvement	on IT business value
Kohli and Grover (2008)	Economics	Firm, multi-firm	Productivity, process improvements, profitability, consumer surplus, innovation, supply chain improvement	<ul style="list-style-type: none"> - Theory development on how IT value is co-created is needed - Understanding of how IT is embedded within processes and its contingencies - Need expanded view of IT value to include social, economic, and financial models of value
Melville et al. (2004)	Resource-based, microeconomics, industrial organizations, sociology, socio-politics	Process, firm	Business process improvements in customer service, flexibility, information sharing, inventory management; Firm improvements in productivity efficiency profitability, market value, competitive advantage	<ul style="list-style-type: none"> - Examine the association between IT resources and operational efficiencies or competitive advantage - Examine the role of industry characteristics in shaping IT business value - How co-created IT business value is generated and captured by the focal firm - Examine the role of country characteristics in shaping IT business value
Gregor et al. (2006)	Economics	Process, firm	Competitive advantage, aligned business/IS strategy, supply chain improvements, increased agility, reduced communication costs, operating costs; improvements on financial measure, productivity, information sharing,	<ul style="list-style-type: none"> - Need to consider organizational forms and capabilities as emergent assets from IT investment

			organizational capabilities	
Mooney et al. (1996)	Porter's value chain	Process	Productivity, performance ratios, returns on investment; automational, informational, and transformational improvements in operational and managerial aspects of business processes	<ul style="list-style-type: none"> - Limited explanation of how value is created using IT - Lack of focus on web of intermediate processes that are involved in the IT value creation process
Soh and Markus (1995)	Resource-based	Firm	Performance improvements, financial indicators (return on assets, ratio of expenses to income)	<ul style="list-style-type: none"> - Discontinuity in conceptualization of IT business value - Need for process view of how IT business value is created

Non-Profit Organizational Performance

For NPOs the concept of IS business value does not subscribe to the typical conceptions discussed in much of IS literature. These organizations do not identify improved organization performance as measured through financial indicators, such as market status or firm growth, but focus on “successful goal accomplishment” (Soh & Markus, 1995, p. 36) which are long-term outcomes (Duque-Zuluaga & Schneider, 2008). Soh and Markus (1995) highlight that the definition of organizational performance is dependent upon how the researcher envisions the organization. They put forth that researchers can use successful goal accomplishment as a measure of performance is the researcher conceptualizes the organization as a “rational, goal-seeking entity” (Soh & Markus, 1995, p. 36). However, this approach becomes even more abstract when the organizational goals are dependent upon addressing multidimensional problems in a dynamic societal environment.

Amongst the dearth of literature on IS business value, the majority of studies focus on economically oriented sectors such as retail, construction, manufacturing, and finance. Interestingly, Schryen (2013) highlights the importance of the firm’s industry when evaluating the impacts of IT as contextual factors play a major role in its assessment. Gregor et al. (2006) included organizations from other industries such as education, health and community services, and government. They identified transformational benefits to the organization from investing in IT, where a non-profit organization experienced organizational change and learning. These considerations add

to the importance of expanding the focus of IS business value studies to include non-financially oriented organizations.

NPOs constantly struggle to maintain a balance between the organization's social goals, which are specified objectives that address social problems in a community, and its financial bottom line (Zmud et al., 2004). This duality can impact decision-making around IS investments, can impact the ways in which technology is used and valued, and can impact the organization's culture as a whole. Additionally, keeping up with the latest technology trends can be costly. NPOs tend to forego investing in recent advances in technology in favor of supporting the core operational and overhead functions of the organization (Stringfellow, 2012). This lack of focus on technology filters through to non-profit everyday work practices which can have serious impacts on the organization's performance. Strategic decisions on funding and supporting the use of the organization's IS resources can ultimately impact organizational performance (Melville et al., 2004). Ultimately, these may be attributed to the unclear understanding of the value of IS within the non-profit organizational structure. Thus, it is essential to understand how IS relates to non-profit organizational performance through generating business value in order to address this pressing business concern.

For NPOs, organizational performance can be viewed as a "multi-dimensional construct" (Soh & Markus, 1995, p. 36) that encompasses both financial and social goal accomplishments (Duque-Zuluaga & Schneider, 2008). Performance can also be viewed from multiple perspectives including the organization or its programs, or from a stakeholder view including the executive board, the community, or the program

participants. Resolving these analytical issues is critical to understanding the business value of IS in a social goal-oriented organization. Alternatively, non-profits are organizations that focus on organizational performance that are not strictly tied to marketplace advantage or financial performance. Non-profits strive to make an impact in society through targeted programs that aim to address complex social issues. IS literature has remained silent on how IS business value is derived in this organizational context. For example, many non-profits haven't adopted the common practice of designating a portion of the budget for training staff on how to effectively use technology (Hoehling, 2013). These strategic decisions on funding and supporting the use of IT resources can impact organizational performance (Melville et al., 2004), even in the non-profit organizational context.

Non-profit organizational performance is multi-dimensional and is focused on the achievement of social goals, such as ending poverty or educational inequality. Non-profits typically employ strategies to attain the objectives that address complex social problems in a community. These strategies typically require collaboration with other non-profit agencies (Buckmaster, 1999; Duque-Zuluaga & Schneider, 2008). Researchers have called for additional inquiries on IS use and business value (Barua et al., 2010; Melville et al., 2004; Schryen, 2013; Soh & Markus, 1995). Very little is known on the impact of alternative types of organizational performance, such as achieving social goals, on how information systems are used and valued. Thus, an expanded view of the beneficial impacts of IS, the derived IS business value, in non-profit organizations is needed.

Though IS can create business value for the organization and impact organizational performance, this can only be achieved if the users actually *utilize* the IS. Studies have shown that there is a significant hurdle to engaging users in using the IS and accepting the changes to the business processes. When users accept and use IS within their work practices, the organization can benefit from numerous IS impacts, including but not limited to improved productivity and operational effectiveness. As previously discussed, organizational performance for non-profit organizations revolve around the impact made on social goals. Thus, we need to reevaluate how the organization is conceptualized in order to support this alternate form of organizational performance.

Alternate Theory Base: Knowledge-Based View of the Firm

The main disconnect between IS business value and non-profit organizational performance is due to the ontological assumptions upon which IS business value has been derived, specifically on how the organization is conceptualized. Ontology refers to the assumptions about how one sees the world, answering the question of ‘what is the nature of reality?’ (Bhattacharjee, 2012; Gregor, 2006; Guba, 1990). As shown in the literature review, much of the IS literature employs a resource-based view of the firm (RBV) as the supporting theoretical base for how organizations behave. Using an economically oriented view of an organization, RBV details how organizations operating within a competitive environment can gain a sustainable competitive advantage through a unique combination of intangible and tangible resources (Barney, 1991; Barney et al., 2001). Herein lays the problem. Rather than focusing on a combination of resources in the resource limited non-profit organizational environment, it is better suited to focus on the

most strategically important resources – knowledge. The *nature* of non-profit organizational performance is inherently different than for-profit organizations, thus requiring a revisit of the ontological premise upon which IS business value is predicated upon.

RBV focuses on how organizations combine resources to obtain a competitive advantage. These resources must be valuable, rare, inimitable, and non-substitutable (Barney, 1991). The key components of RBV identify the attributes of an organization's resources that allow it to perform competitively within its industry. However, many non-profit organizations collaborate with other non-profits and are not necessarily competing on a strategic level. Additionally, many non-profit organizations do not have the best and the most updated resources available for organizational use. Therefore, RBV is too general in its focus on how firms utilize a specific combination of resources, such as knowledge, to support organizational efforts.

Organizations that focus on community service goals, which de-emphasizes an economic return to the organization, require an alternative explanation of resource exchange (Molnar & Rogers, 1976). The ultimate purpose of non-profit organizations is to effect change in social problem areas. To effect change, organizations need to identify the problem areas, identify solutions to the problems, support and facilitate those solutions, and assess the impact that has been made. These steps towards impacting change require a specific type of resource – knowledge.

We adopt the definition of knowledge as “a justified belief that increases an entity's capacity for effective action” (Alavi & Leidner, 2001, p. 109). There are

multiple perspectives that can be taken when examining knowledge. There is the tacit-explicit distinction. Tacit knowledge is embedded in any individual and is hard to articulate, only accessible through observation. Tacit knowledge differs from codified knowledge that is accessible by others, referred to as explicit knowledge (Nonaka & Takeuchi, 1995). One can take a pragmatic approach to classifying knowledge in assessing its practical applications providing potential for the organization (Alavi & Leidner, 2001). This pragmatic knowledge type differs from the more common way that knowledge has been studied as being either tacit or explicit knowledge. There is also the view of knowledge as a capability (Carlsson, El Sawy, Eriksson, & Raven, 1996), where the focus is on “building core competencies, understanding the strategic advantage of know-how, and creating intellectual capital” (Alavi & Leidner, 2001). From this perspective, the value of knowledge to the organization is not in its possession of it, but in the firm’s ability to apply said knowledge towards well-informed action. We apply this perspective to knowledge as it is most apt for the non-profit context.

In their examination of knowledge management systems, Alavi and Leidner (2001) state that from a knowledge-as-capability perspective IT plays the role of enhancing “intellectual capital by supporting development of individual and organizational competencies” (p. 111). This is especially applicable to non-profits. Over time, NPOs develop knowledge on the best practices in dealing with social issues, creating an organizational capability of competently addressing social problems. IS has the potential to support non-profit efforts and improve the organization’s internal knowledge set in reference to those social problems. Additionally, as the non-profit

employees utilize IS, they can also develop an improved capability in identifying opportunities for IT investment within the organization and in the application of those IT investments in support of attaining organizational social goals.

As noted earlier, the resource-based view of the firm is the dominant view of the firm in much of IS literature that focuses on IS business value. However, there are alternate views of the firm that can provide an entry point to conceptualizing IS business value for organizations in the social sector. Grant (1996) put forth the knowledge-based theory (KBV) of the firm as an extension of the resource-based view which focuses on “knowledge as the most strategically important of the firm’s resources” (p. 110). The knowledge-based view does not stop at the main concerns of strategic management and economic theories which focus on competitive advantage. It addresses other concerns including “the nature of coordination within the firm, organizational structure, ... [and] firm boundaries...” (Grant, 1996, p. 110). By casting a broader focus on the organizational goal and a narrower focus on the type of resource, KBV provides an avenue for examining organizational strategic actions and its resultant impact on the organization.

The foundations of the knowledge-based view are (1) transferability, (2) capacity for aggregation, (3) appropriability, (4) specialization in knowledge acquisition, and (5) knowledge requirements of production. Transferability refers to the way in which knowledge transfers within the organization (internal) and between the organization and its strategic partners (external) (Grant, 1996). Internal knowledge transfer is critical in supporting the internal knowledge that develops over time within the organization.

External knowledge is critical in creating value amongst alliances when knowledge crosses over firm boundaries. Eisenhardt and Santos (2002) highlight four important knowledge characteristics that impact the efficacy of both internal and external knowledge transfer: tacitness, causal ambiguity, complexity (which impedes transfer) and strategic value (which enhances transfer). The extent to which knowledge within an organization is embedded in its individuals in the organization impacts how well strategic knowledge can transfer within the organization and across its alliances. This can also create difficulties in linking the knowledge and the outcomes that resulted due to that knowledge being applied. The level of complexity in the knowledge can impede the transfer of knowledge, whereas the strategic value of that knowledge can enhance the transfer of said knowledge.

For non-profit organizations, this aspect of KBV is particularly apt in that non-profits typically operate with alliances and readily share information and knowledge that can effectively impact the social issues of interest. For example, it is difficult for an NPO to say with any certainty that program A will eradicate poverty; however, through past experiences, the NPO understands the complex nature of poverty and how program A interacts with the facilitating factors of poverty.

Capacity for aggregation refers to how knowledge can be packaged in a common language allowing it to be shared and providing opportunities for decision-making (Grant, 1996). Understanding how organizational knowledge is transmitted is just as important as understanding how that knowledge is received, or absorbed by organizations (Cohen & Levinthal, 1990). This aspect of manipulating knowledge in a way that can

best be understood or interpreted by many is a key facet of non-profit organizational knowledge. Identifying the best methods of sharing information with various entities is a major concern of non-profits. Through their alliances with other non-profits or government agencies, non-profits are concerned with furthering their causes and facilitating change in society.

Appropriability is described as “ability of the owner of a resource to receive a return equal to the value created by that resource” (Grant, 1996, p. 111). This aspect of KBV is not immediately transferrable to the non-profit context. According to Grant (1996), knowledge can be viewed as nonrivalrous or public goods (Arrow, 1984) where it can be shared without anyone losing claim to it. This makes it difficult to claim that knowledge is a resource that is essential to create a competitive advantage. However, these inherent issues with knowledge’s appropriability become a moot point when considering the non-profit context. The concept of competitive advantage is not necessarily the driving force for NPOs. Knowledge is readily shared amongst non-profits as they work towards impacting change in their community. The difference presents itself in how that knowledge is applied, not by merely having the knowledge.

In the non-profit context, it is essential for individuals to specialize in their social area of focus in order to more efficiently and effectively address complex issues in their respective areas. Grant (1996) noted that specialization in knowledge acquisition is an important aspect of the value of knowledge, in order to produce it in the most efficient way possible. For example, in non-profit context, a specialist or an organization that focuses on education inequality is aware of the many interacting and complex factors that

impact; these are not easily transferred to the mental health issue area. Another example is that non-profits do not specialize in technology-related areas, such as database management or web site development, and thus, should not consider engaging in those areas unless they are supported by an organization that specializes in technology. This level of knowledge specialization is widely rampant in the non-profit sector. Therefore, knowledge specialization as a requirement of KBV is also the primary source of value for organizations in the non-profit context.

Non-profits are continuously reaching for a better way to address social issues in their local communities. Bontis (1999) highlights that the KBV “identifies the primary rationale for the firm as the creation and application of knowledge.” This further supports the application of KBV as the theoretical base for examining IS business value in non-profit organizations. In the non-profit context, IS supports the organization’s efforts to create and apply knowledge, not to gain an advantage in a competitive market. NPOs continuously apply, re-evaluate, and learn from the various insights that are gained through impacting change in the community. In this sense they are continuously creating new knowledge around the social issues that the community faces over a long period of time. This form of organizational knowledge creation, defined as developing new knowledge or replacing existing knowledge (Alavi & Leidner, 2001), is prevalent in the non-profit organizational context.

Organizational knowledge creation and development is embedded within the organization’s practices (Carlile, 2002). Within the daily routines and actions of individual employees, there is an undercurrent of knowledge and understanding related to

the organization's working environment. As new issues and opportunities arise, organizations are able to apply the knowledge that they already possess. Additionally, the organization can craft new skills and apply new knowledge as it applies to the opportunities and challenges that they face. Over a period of time, these efforts support the organization's continuous knowledge needs and growth potential. These aspects of how non-profits organize their work in support of social goals can be viewed as organizational learning, defined by Levitt and March (1988) as "routine-based, history-dependent, and target-oriented" (p. 319). Both organizational knowledge creation and organizational learning are foundational concepts of KBV (Eisenhardt & Santos, 2002) and are particularly applicable in the non-profit organizational context. These theoretical lenses allow us to examine how non-profit gain value from IS by applying a KBV perspective. Examining IS business value from a KBV perspective will allow a new understanding of how IS business value manifests in the non-profit organizational context.

The next section details Study 1 which uses an action research approach to integrate IS in the organizational practice of a non-profit organization and assesses the impacts of said integration.

CHAPTER III

STUDY 1: EXAMINING NON-PROFIT ORGANIZATIONAL PRACTICES AND INFORMATION SYSTEM BUSINESS VALUE: ACTION RESEARCH AT UNITED WAY OF GREATER GREENSBORO

Introduction

Much of IS research has not focused on the inner workings of non-profit organizations in order to better understand IS utilization and how its value is derived in the non-profit organizational context. Examining the practices that occur in the non-profit organizational context will provide insight into better understanding how IS utilization and how it is valued. United Way of Greater Greensboro (UWGG) has experienced significant turnover where staff members in key managerial positions have left the organization. After examining its current business operations, UWGG identified major issues in their organization's operations and created a high-level plan to improve those operations. Data management was found to be a major priority. We aimed to understand the organizational practices at UWGG in order to examine IS business value and address the immediate IS needs of UWGG. Thus, the research question of interest is:

How does integrating an information system into a non-profit organization's practice improve the value that is derived from the information system?

In order to develop a clear understanding of IS business value in the non-profit context, the primary researcher needs to become intimately involved in the work

practices of the organization. Bechky (2011) highlights the necessity for researchers to “directly examine what happens in social life” in order to more accurately theorize about organizational experiences. This study employs an action research (AR) strategy (Baskerville & Wood-Harper, 1998) in order to answer the research questions of interest. The primary goal of AR is to develop solutions to practical problems while contributing to scientific knowledge (Baskerville & Myers, 2004; Lingard, Albert, & Levinson, 2008). As such, this study can be characterized as an empirical inquiry that investigates and impacts a phenomenon within its real-life context. The research methodology is appropriate as it allows the primary researcher to become intimately involved with the firm to understand how the focal company perceives, uses, and values the impacts of integrating IS within its work practices, and the potential impacts on the non-profit’s performance.

AR creates the possibility of change in a real-life situation where there are multiple factors affecting the people involved which are included in the research design (Blum, 1955, p. 1). AR places the “IS researcher in a ‘helping-role’ within the organization that is being studied” (Baskerville, 1999, p. 829). It is important to note that AR “is not founded on a positivist model of science and cannot be evaluated on the basis of positivist criteria” (Baskerville, 1999; Susman & Evered, 1978). Baskerville (1999, p. 829) succinctly highlights the motives of AR as to “promote subjective over objective, understanding over universal laws, and contextual realism over laboratory reductionism.” AR is characterized by five major aspects: “(1) its multivariate social setting, (2) its highly interpretive assumptions about observation, (3) intervention by the researcher, (4)

participatory observation, and (5) the study of change in the social setting” (Baskerville, 1999, p. 829).

Non-profit organizations continually work towards addressing complex social problems. Social problems are as “phenomena that have a serious negative impact on sizable segments of society” (Weick, 1984). Examples include education inequality, financial instability, and limited health care access and services. Here is an example of how nonprofits strategically operate: Non-profits that focus on improving education within a particular community may develop over time certain processes and procedures that have shown to make significant improvements in the high school dropout rates of the individuals within that community. These organizational actions, or routines, can be viewed as consisting of two aspects: the *capabilities* of the organization and the *practices* of the organization (Parmigiani & Howard-Grenville, 2011). This dualistic understanding of organizational routines can respectively provide the ‘what’ and the ‘how’ of the ways in which non-profits enact solutions to complex social problems. Routines are developed over a period of time but are not necessarily stable or fixed in the ways in which they are enacted. Additionally, there are numerous artifacts that are a part of an organizational routine, ranging from documented rules and procedures to specific technologies (Pentland & Feldman, 2005). These artifacts are critically linked to the success or failure of routinized organizational actions. Research has highlighted that everyday practices that occur within organizations result in unique interactions with technology (Feldman & Orlikowski, 2011). Further, research has shown the importance of these contextual aspects of routines, including “the effects of individual actors, tacit

knowledge ... and context specificity” (Parmigiani & Howard-Grenville, 2011, p. 413) and technology use.

Theoretical Framework

Practice theory allows for an examination of the micro-dynamics that occur within an organizational context that produce specific outcomes (Feldman & Orlikowski, 2011). The micro-dynamics are the specific actions that occur within an organization that, collectively, result in organizational outcomes. In traditional positivist research terms, practice theory focuses on the relationships (arrows) between constructs or concepts (boxes) rather than on the constructs or concepts themselves (Feldman & Orlikowski, 2011). The term ‘practice’ has been used in many different ways in many different studies, from “practice as what people do... [to] knowing in practice” (Corradi, Gherardi, & Verzelloni, 2010, p. 269). This research adopts the view of a practice as “performing an action or carrying out a practice” (Schatzki, 1996). In an organizational context, practices are the set of actions that produce a set of results, either intended or unintended by the enactor.

Practice Theory allows researchers to understand how organizations actually use technology by examining their everyday actions towards achieving organizational goals. Feldman and Orlikowski (2011) highlight three major principles of Practice Theory that, when taken together, allow for researchers to examine the relationship between “specific instances of situated action and the social world in which the action takes place” (p. 1241). The first principle puts forth that everyday actions are vital in creating social structures. This principle focuses on how practices continually “produce and reproduce

the structures that constrain and enable actions” (p. 1241). Østerlund and Carlile (2005) highlight that Practice Theory places everyday practice serves as the main support for the “production and reproduction” of the relationship between “problematic dichotomies,” such as the human-material dichotomy.

The second principle of practice theory acknowledges the presence of tensions and contradictions that other theories ignore through its rejection of concrete dualism (Feldman & Orlikowski, 2011). A practice theory lens engages in thoughtful pursuits of the existence of a duality (rather than dualism) in IS phenomena. As Poole and Van de Ven (1989) highlight, it is useful to examine the paradox of the human-material combination as “they present opportunities to discover different assumptions, shift perspectives, pose [new] problems ... and focus on different research questions” (p. 564). In an examination of applying practice theory when examining technology, Orlikowski (2000) highlights that the motives and goals of different users directs the usage of technology, thus enacting a “technology-in-practice” (p. 409).

Lastly, Feldman and Orlikowski (2011) describe the third principle of relationality of mutual constitution, which highlights that “phenomena always exist in relation to each other produced through a process of mutual constitution” (p. 1242). In the social system of everyday activities, humans are complex entities influenced by numerous environmental factors and each encounter with material objects can result in unique outcomes. Mantovani (1996) highlighted how the “environment... is constructed by actors; they too, in turn, are ‘modeled’ by the opportunities which the environment offers them” (p. 9). This view highlights the recursive interactional relationship between

user and technology. Østerlund and Carlile (2005) highlight that the significance of social objects are derived from their relationship with other social objects, not their intrinsic features. The significance, or value, of information systems is not in the features or functionality of it, but rather in what it offers a user to accomplish.

Orlikowski (2000) stated that “use of technology is not a choice among a closed set of predefined possibilities, but a situated and recursive process of constitution” (p. 409). Users have goals or motives and their interaction with technology either enables or constrains the accomplishment of that goal. In the goal attainment process, users continually assess and reassess what the technology affords or constrains and work towards reconfiguring the technology-in-practice to conform in support of the goal. Corradi et al. (2010) goes even further to state that technology designers should consider prior work practices and the context of use to create effective technology. Technologies-in-practice are continually changed and refined to map current work practices as they develop.

Von Bertalanffy (1972) put the concept of mutual constitution best when, referring to General Systems Theory, he stated that,

Modern technology and society have become so complex that the traditional branches of technology are no longer sufficient; approaches of a holistic or systems, and generalist and interdisciplinary, nature became necessary ... formal organizations like bureaucracies, educational institutions, or armies; socioeconomic systems, with their grave problems of international relations, politics, and deterrence... these are essentially "system" problems, that is, problems involving interrelations of a great number of "variables".

NPOs are constantly working towards solving various social problems over a lengthy period of time. For example, in disaster situations organizations offer aid to assist with basic physical needs, through shelter services and health assessments, to higher-level problems, such as rebuilding housing and reestablishing the operations of local businesses. These actions require day-to-day interaction with the affected population who may not have access to various forms of technology that have become a regular part of societal interactions. These companies have continually engaged in internal work practices that may exploit the organizational features of technology in order to aid in the differing types of activities that are needed to address disaster situations. Through focusing on the actual usage of technology, understanding performance impacts will be more meaningful (Barua et al., 2010).

The current stream of research on NPOs privileges the human aspect of technology use, attributing it to improved coordination or knowledge management (Bajpai, Tchouakeu, Maitland, Zhao, & Tapia, 2010; Beamon & Kotleba, 2006; Tapia, Maldonado, Tchouakeu, & Maitland, 2012; Tatham & Spens, 2011). In the spirit of practice theory, a focus should not be on an a priori human versus material distinction, but on examining the interactions between the user and technology. Examining the everyday practices within these organization types in order to shed light on the duality that exists within the organization-ICT relationship.

NPOs try to address social problems on a daily basis within ever-increasingly complex environments. There are many stakeholders involved and many levels of influence, from global or local issues to institutional or political forces, which can disrupt

their activities. Examining their in-situ actions with technology allow for researchers to understand the impact that these multiple internal and external environmental issues have on their efforts to address social problems. As the organization uses technology to enact various work practices, there are social influences that impact the way in which those actions can be carried out. For example, though social media applications may seem like an appropriate technology to facilitate communication in time-sensitive situations like disasters, there may be cause for concern about individual privacy of those in affected areas (Lindsay, 2011). The possibility of “collection, retention, and data mining of personal information” (Lindsay, 2011, p. 8) is a real concern for affected populations and should be considered prior to simply implementing new forms of ICT. This socially constructed constraint on the enacted technology practice (communicating in real-time via social media applications) are being created, maintained, and changed in the real world and theorizing from the proposed perspective would provide insight into these occurrences.

Process theory focuses on breaking down organizational actions and outcomes as “...sequences of events that occur over time and lead to outcomes of particular interest” (Boudreau & Robey, 1999). The analytical approach of process modeling is based upon Process Theory. It supports the effort of mapping out actions in order to examine what occurs within a larger set of actions. For example, Newman and Robey (1992) examine social change that occurs throughout an IS development process by examining the interactions between users and developers. Process modeling allowed the researchers to identify the points in the development process where the users or the developers initiated

a change and how that was related to the final IS outcome. Following along those lines, we integrate that aspects of Process Theory that allow for an intricate examination of the role of IS within an organizational practice at UWGG.

Research Methodology

In AR, there are specific steps that have been accepted as a part of the AR process which is a “change oriented approach” (Blum, 1955, p. 5). Rather than having passive subjects that are examined, AR involves the subjects, transforming them into active participants in the change process. The client-system infrastructure, which is the “social system in which the members face problems to be solved” (Susman & Evered, 1978), must be identified. This step is necessary to identify the employees that are the key members in the change process, and who the primary researcher will engage with when collaborating and implementing change. Baskerville (1999, p. 829) summarized this as providing “the authority, or sanctions, under which the researchers and host practitioners will collaborate and specify actions that should benefit the client and contribute to science.” In this sense, AR allows for the changes to be carried out *with* the people, where those affected are actively involved in identifying the problem and appropriate solution that will effect positive change (Lingard et al., 2008).

Action research involves a five-staged intervention process which includes diagnosing problems, planning actions to resolve problems, enacting in the identified solutions, evaluating the impact of the solutions, and expressing the lessons learned to the firm, the collaborative team, and the research community (Baskerville, 1999; Baskerville & Myers, 2004; Susman & Evered, 1978). The goal of the phases is to diagnose the

problems affecting the client-system infrastructure, implement changes, examine the impact of the changes and share the knowledge gained not only with those affected, but also to a larger community of interested people. The five stages are interrelated and occur in multiple iterations as the issues related to the client-system are addressed. Figure 3 provides a visual depiction of the CAR process model, highlighting the role of theories used within the action research as adapted from Davison, Martinsons, and Ou (2012). The instrumental theories “ensure the focal theory is relevant to practice and that practice is connected to the focal theory” (Davison et al., 2012).

In the **Diagnosing** stage, the problems or questions of interest are identified by the practitioner within the social setting that they are extremely familiar with as they live and experience it on a daily basis. The researcher collaborates with the practitioner to assess the holistic perspective of the complex organizational problem (Baskerville, 1999, p. 830). A set of working hypotheses are developed to form the theoretical framework about the nature of the organization and the problem of interest (Baskerville, 1999, p. 830).

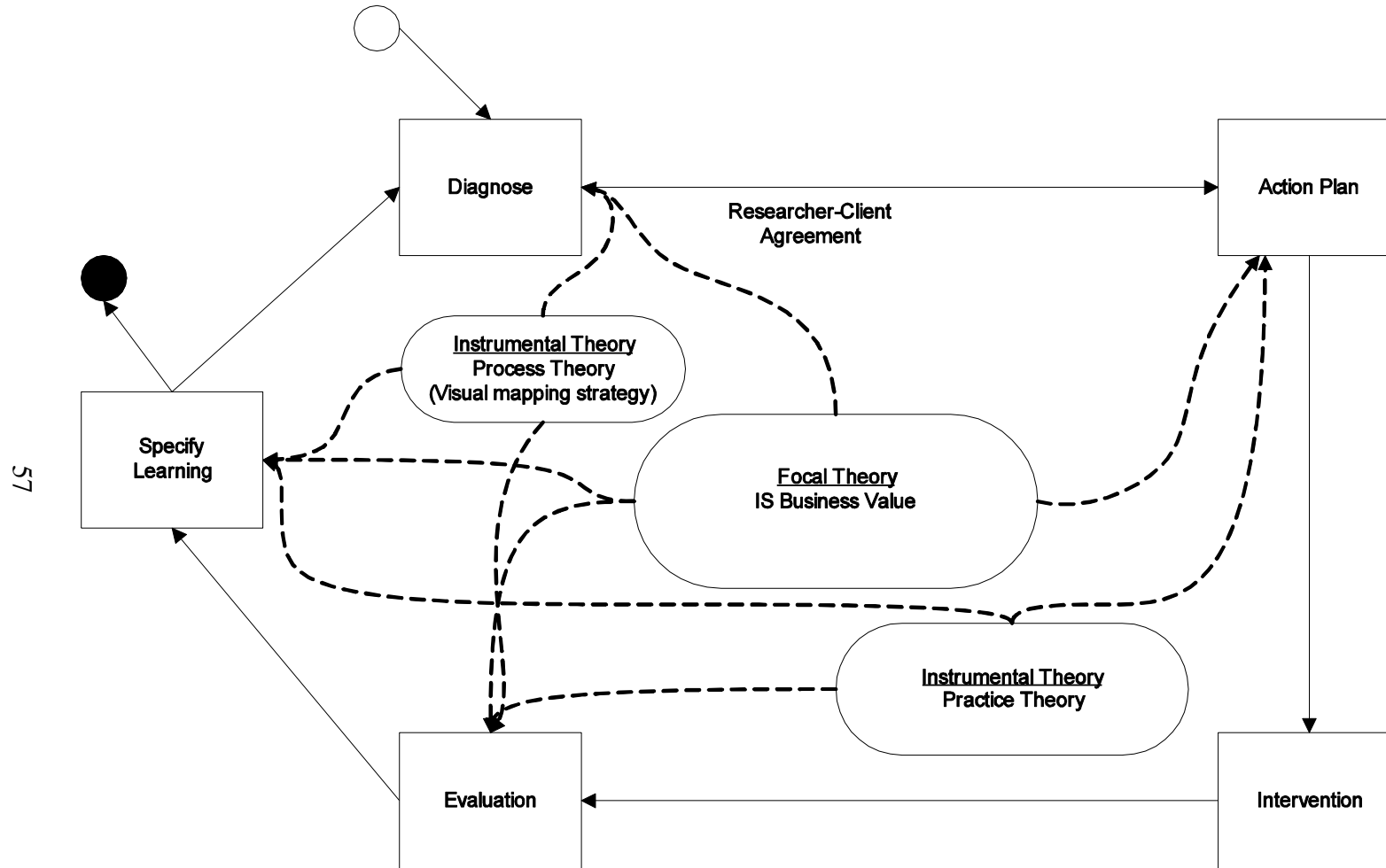


Figure 3. Canonical Action Research Model - Adapted from Davison et al. (2012)

In the **Action Planning** stage, the practitioners and the researcher collaborate to specify “organizational actions that should relieve or improve” (Baskerville, 1999, p. 830) the problems identified in the previous stage. The actions are guided by the theoretical framework that highlights how the planned actions will aid the organization achieve the ideal way of doing business. This stage develops a plan of action which identifies what will change and the way it will be changed.

In the **Action Taking** stage, the actions identified in the previous stage are implemented within the organization. Intervention strategies can be directive (where the research directs the change) or in-directive (where the change is sought indirectly) (Baskerville, 1999, p. 830). In this dissertation, the intervention strategies will be directive, specifically addressing the ways in which IS are used within a particular firm practice.

In the **Evaluation** stage, the actions taken are evaluated to “determine whether the theoretical effects of the action were realized and whether these effects relieved the problems” (Baskerville, 1999, p. 830). This stage can trigger the iterative process of the AR cycle if the changes taken did not impact the organization in the way the collaborative team expected. Theory is developed in this stage as the evaluation of the actions either confirms or disconfirms the impact on the firm as expected (Susman & Evered, 1978).

Though Susman and Evered (1978) identified **Specifying Learning** as a separate fifth stage, it actually occurs throughout the entire cycle. This stage entails sharing the knowledge gained to three main audiences: the organization, the collaborative team, and

the scientific community (Baskerville, 1999, p. 830). Throughout the research endeavor, learning occurs by both the researcher, in how to interact with employees and integrate within the firm culture, and by the focal firm, in how to change processes in order to achieve identified goals. In this dissertation, this fifth stage will primarily involve theorizing on the IS business value generation process and its relationship to social goal-related firm performance.

Within each of the 5 stages, various methods of data collection were employed including site visits, trainings, field notes, informal conversations, semi-structured interviews, and document collection. Collection of multiple pieces of data allowed the primary researcher to triangulate the data in support of the propositions that were put forth (Glaser & Strauss, 1967; Urquhart, Lehmann, & Myers, 2010). As action research involves an iterative and reflective process, there were numerous instances of data collection and analysis that will occur throughout the entire dissertation. Data analysis was conducted in the spirit of grounded theory methodology, a theory-building process that engages in an iterative reflective process of “gathering data, coding, identifying themes, and then seeking out more data” (Glesne & Peshkin, 1992). First, categories were identified that seemed readily applicable to and indicated by the data (Corbin & Strauss, 2007; Glaser & Strauss, 1967), then themes and relationships between those categories were identified. The categories must be meaningfully relevant to and able to explain behavior; thus, there is a need for an iterative and reflective analysis process. This aspect makes grounded theory methodology a natural fit with action research studies (Baskerville & Pries-Heje, 1999; Kock, 2004). Most importantly, since the categories are

discovered by examination of data obtained in the real-world, laymen should be able to understand the categories, themes, and relationships with relative ease (Strauss & Crobin, 1998) adding to the practical value of the theory.

Evaluation of AR has been addressed by many researchers in an attempt to address the necessary scholarly rigor to support AR as a scientific endeavor (Baskerville & Pries-Heje, 1999; Davison et al., 2012; Davison, Martinsons, & Kock, 2004; Kock, 2004). As with many other forms of research, there are threats that can impact the results and findings. AR threats can be characterized into three categories: (1) uncontrollability, (2) contingency, and (3) subjectivity (Kock, 2004). The uncontrollability threat is that the researcher attempts to change the environment being studied without having full control over the environment (Kock, 2004; Susman & Evered, 1978). The contingency threat is that the results from AR may be inextricably intertwined with the contextual elements that are a part of the holistic organizational environment. The subjectivity threat is due to the “deep involvement of researcher” in the organizational environment, introducing “personal biases in the conclusions” (Kock, 2004, p. 269).

Though not all threats can be easily resolved, there are a few ways that researchers can address these threats through designing the research endeavor appropriately. First, the researcher can ensure to clearly identify the unit of analysis which will drive data collection and analysis (Kock, 2004). This action allows for external validity to be established as one can assess observable patterns across the units of analysis. The use of grounded theory techniques in analyzing the data can help remove the subjectivity of the researcher and provide internal reliability (Kock, 2004).

Lastly, the researcher should engage in multiple iterations of the AR cycle to provide external validity to the study. Related patterns can be observed in different contexts and allows for the strengthening of research findings by building upon lessons learned in previous iterations (Kock, 2004).

Baskerville (1999a, pp. 829-831) states that there are four process sets which provide a means for evaluating action research. The first process “assure[s] that theory has been informed by action.” In this dissertation, the action planning, action taking, and evaluation phases will inform the theory developed in the specifying learning phase. The second process “assure[s] adequate client participation in determining the action.” The third process “assure[s] appropriate researcher involvement.” The fourth process ensures that there is an “achieve[ment] of an adequate understanding of the goals of the action.” Baskerville (1999) stresses that evaluators should be able to “reconstruct these processes in order to determine the quality of an action research project” (p.831). The more details that are provided in the write-up of the research endeavors, the easier it will be for evaluators to reconstruct the way the resulting theories developed in the research.

Action Research Activities and Analysis

The United Way of Greater Greensboro (UWGG) is a medium-sized, American, Southeastern non-profit organization located in Greensboro, NC. With 26 employees, UWGG has been in business for over 90 years under a well-known charitable brand and recently raised over \$11 million dollars in the 2013-2014 fiscal year. UWGG focuses on three major social problem areas: Education, Income and Resources, and Health. Through developing its own initiatives and partnering with other non-profit agencies,

UWGG supports numerous programs and activities that are directly aimed at supporting local communities in these three areas. Within each of the three social problems, there are specific objectives, strategies, and indicators (measures) that are used to assess intervention programs. UWGG has experienced significant turnover in the last 2 years. Many staff members have less than 5 years of tenure at the organization, including managerial positions. In the beginning of 2012, UWGG contracted a consulting company to identify the major issues in their organization's operations and help produce a high-level plan to improve those operations. Interestingly, the final report stated that employees wouldn't buy into any changes unless they understand the benefits for them, for their department, and for the organization. Technology issues ranked last in importance, though data management ranked first as a major priority. The organization created a collaborative team to address the issues identified by the consultants and they are actively working to make changes within organizational operations. Thus, the employees are primed for change and are open to improving their processes.

We collaborated with UWGG in order to improve the value of IS within the organization and examine the impact the non-profit organization's contextual aspects on how it generates IS business value. Action research is an ideal research methodology for research with non-profits as there are significant opportunities for improvement specifically related to the utilization of information systems which allows for the generation of IS business value. AR allows for an examination of how change occur within an organization, providing a way for researchers to effectively impact change and observe the results of the changes in the organization. Overall, the primary researcher

committed two to three days a week for one year to engaging in action research with UWGG.

A preliminary step is necessary to understand the inner workings of the organization and any outside factors that may influence organizational actions. Table 2 shows the individuals that were interviewed either through a formal semi-structured interview or through conversations that occurred related to the organization. Some of the interviews were transcribed and analyzed to identify areas for potential research. Some of the individuals were not UWGG employees; these conversations occurred at a week-long training for the Enterprise System that the primary researcher attended. The conversations were included because they provided insight into the contextual nature of the ES usage as many other United Way affiliates used the same system.

Table 2. List of Interviewees for Preliminary Setup

<u>UW Location</u>	<u>Role</u>	<u>Tenure (years)</u>	<u>Duration (min)</u>
Forsyth	Community Impact - Multi	8	60
GSO	Data Manager	2	180
GSO	Community Impact - Income	5	190
High Point	Community Impact - Multi	n/a	15
GSO	Data Management Team	n/a	180
GSO	Donor Relations	4	70
GSO	Community Impact - Health	1	91
GSO	Community Impact - Health/ Relationship Management	4	62
GSO	Community Impact - Education	1	94
GSO/HP/Forsyth	IT Support	0.25	45
GSO	Marketing Specialist	0.25	75
GSO	Manager-GSO Initiatives	2.5	45
GSO	Community Impact - Income	4	40
GSO	Marketing Manager	0.05	120
GSO	Vice President	2	90
GSO	President & CEO	1.5	120
GSO	Marketing Manager and Specialist	n/a	60
GSO	Data Manager and Senior CI Specialist	n/a	60
GSO	Senior CI Specialist	n/a	30

The specific IS that we focused on is an Enterprise System (ES), defined as a “large-scale application software package that supports business processes, information flows, reporting, and data analytics in complex organizations” (Markus & Tanis, 2000; Strong & Volkoff, 2010). UWGG uses a special type of ES characterized as a ‘donor-centric database system that manages the financial donations of individuals and organizations and incorporates various communication tools.’ This type of customized ES is meant to represent the best practices approach for supporting the day-to-day activities that occur within the organization.

UWGG implemented the ES in 2009 and there was a minimal amount of initial training that same year. Figure 4 shows the flow of information through UWGG’s ES and an explanation of the figure follows. Starting on the bottom left, Partner Agencies (PA) can access the ES through a web portal which allows them to input information in the system and view a history of previously submitted information. This web portal is how PAs submit their applications to receive funding for programs that address specific issues within the local community. As a part of the Action Planning phase (discussed in detail later), we identified that there is future functionality where the Impact Council can use a web portal to access and edit information stored on the ES. Moving to the right side of the figure, it highlights the 4 departments within UWGG which all use the ES, however at differing levels of usage. For example, the Finance department uses the ES extensively throughout their work practices whereas the Community Impact and Investment (CII) department barely uses it at all. Moving to the top side of the figure, it highlights how the information related to the Program Investment Practice is captured

within the ES. PAs enter information related to the programs that they put on. For example, within a particular program there can be multiple activities that aim to address specific strategies identified by UWGG. The firm collects both numerical and text data regarding these activities and assesses the impact of the collective activities on the program level. Future functionality that is a part of the Action Planning phase is to use the ES to aggregate program-level information to provide community-level outcomes which is a major part of the firm's strategic improvements.

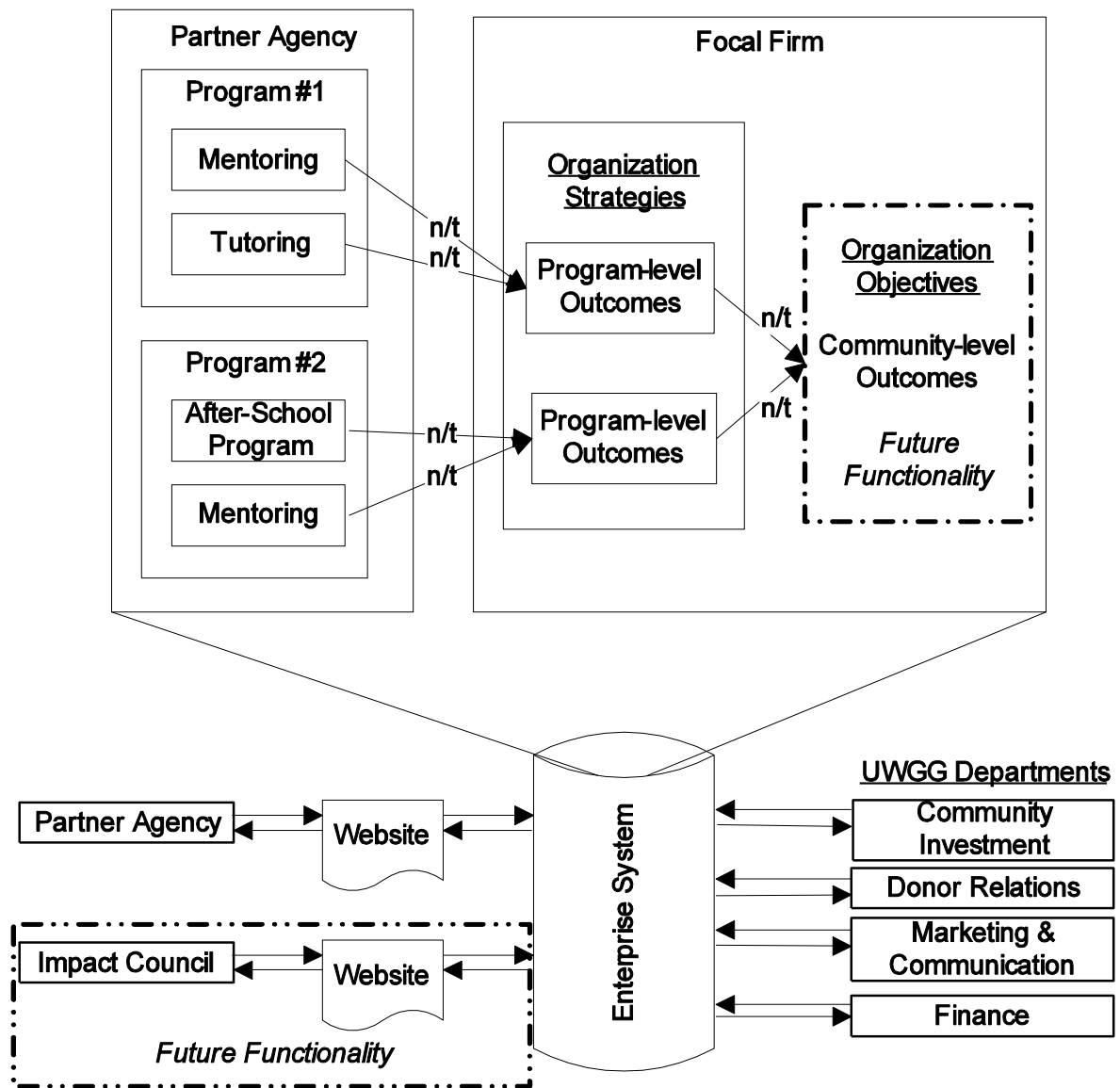


Figure 4. Enterprise System Schematic.
n/t=numerical and text data transfers

Within the CII department, the ES has been minimally used since the 2009 implementation. There is functionality to support the activities in the CII department yet it was not being utilized. The ES needs to be integrated with the business processes in order to fully support the organizational change to outcome-based measures. The

department as a whole recognized that there needed to be better integration, yet they were not working towards integrating the ES into their daily activities. One CI specialist stated that they are “*too busy ‘doing what they do’*” and they don’t value the ES as a way to improve their operational efficiencies or to improve their ability to select, assess, and support the intervention programs that are making an impact in the community. For these reasons, we chose to focus on the ES utilization at UWGG within the CII department.

As previously shown, Figure 3 is a graphical depiction of the Action Research process, specifically highlighting the role of theory in the process. Davison et al. (2012) highlight the importance of understanding the role that theory plays in Action Research. More specifically, they discuss two roles of theory: focal and instrumental. Focal theory “provides the intellectual basis for action-oriented change” (Davison et al., 2012, p. 765) and instrumental theory “support[s] the process of identifying and applying focal theory” (Davison et al., 2012, p. 769).

In this study, we focus on IS Business Value as the focal theory. Prior research has shown that organizations gain value from their investments through integrating IS within their business practices and processes (Melville et al., 2004; Schryen, 2013). After discussing the issues that were present at UWGG in the CII department, we determined that by integrating the ES within the regular business activities of the CII department would improve their utilization of the system and improve the business value of the system for the department and the organization. This decision drove all of the actions chosen to be specifically ones that you would better integrate the ES into the work practices of the CII department. In evaluating the success or failure of each action, we

focused on how each action would improve the value of the ES, for each employee, the CII department, and the organization. Lastly, in our reflections on the improvements (or maintenance of status quo), we were able to examine what we learned from the interventions and how our new knowledge impacted the existing theory on IS business value.

The instrumental theories we used were Practice theory and Process theory. We previously discussed how Practice Theory is used in this research, through allowing researchers to examine the complex interactions that occur in organizations. As we discuss later on, process theory is used in order to understand the micro-dynamics that occur within the CII departments work activities. These theories allowed us to identify and analyze the impact of the interventions that we implemented within the organization.

We focused on the Program Investment Practice (PIP) within the CII department. In the Education focus area there are 11 agencies that provide 20 programs which are evaluated. In the Income and Resources focus area there are 12 agencies that provide 21 programs which are evaluated. In the Health focus area there are 12 agencies that provide 21 programs which are evaluated. Altogether, there are 62 programs that are evaluated firm-wide. For the 2013-14 funding cycle, \$6 million was invested in these 62 programs. Thus, it is important that these funds are allocated to the best performing programs as to ensure maximum impact for the community. More insight on the Practice was needed in order to fully understand each step. Therefore, follow-up interviews were conducted with the individuals shown in Table 3. These individuals were the AR collaborators that, including the primary researcher, made up the client-system.

Table 3. List of Action Research Collaborators (Client-System)

<u>Role</u>	<u>Tenure (years)</u>
Data Manager	2
Community Impact - Health	1
Community Impact - Education	1
Community Impact - Income	4

The Program Investment Practice begins every year in November, in May the PA programs are funded for the current year, and ends in August when the PAs submit data on end-of-year actual numbers from the previous year. The main time period for data collection and information analysis needs is during November through February, when the programs are assessed and the funding amounts for each program are identified. The process involves the CI specialists in the focal firm, a group of volunteer experts in each of the focus areas called the Impact Council (IC), and a subcommittee of the Board called the Community Impact Council (CIC). PAs submit an application to receive funding to support various programs. The program activities must align with the objectives and strategies within one of the social issue focus areas. The CI specialists work with the ICS to assess the applications, ranking them and recommending funding amounts. The CIC then reviews and approves the funding levels and the PAs receive confirmation of their requests. Currently, this process is not integrated with the ES within the organization. The aforementioned environment provides fertile ground for examining the role of IS in this specific business process, how value is derived from the integration of IS within this process, and its overall impact on firm performance.

Figure 5 provides a graphical representation of the timeline entire Action Research Project and Table 4 details the action research activities that were carried out at UWGG. A discussion of these activities follows.

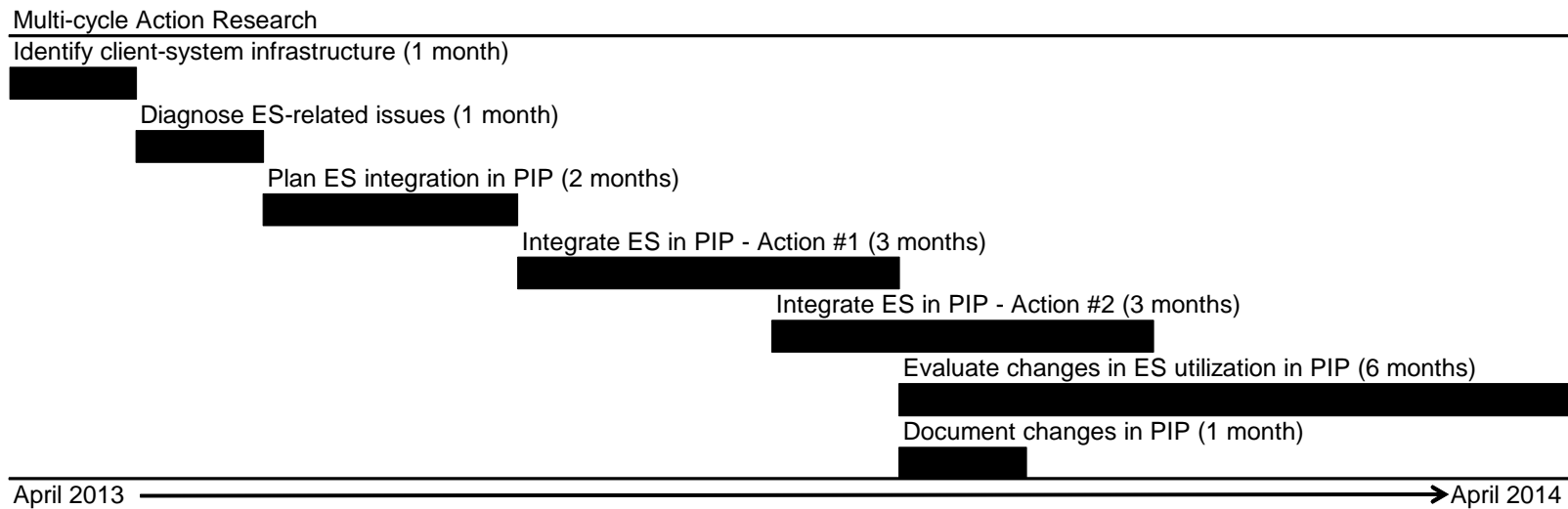


Figure 5. Timeline of Action Research

**Table 4. Action Research Activities at United Way of Greater Greensboro –
Adapted from Davison et al. (2012)**

Action Research Stage	Action #1 Dashboards	Action #2 Volunteer Portal
1. Diagnose 4/2013 – 5/2013	<p>1.1 Documents analyzed to assess firm objectives and strategies. Training and informal conversations provided insight into the differential usage of the enterprise system (ES).</p> <p>1.2 Interviews identified that effectively managing and analyzing different types of data is an area that is important. Analysis of aggregated data to express community-level outcomes has not been performed in the past and is a needed capability that will be explored. Considerations on level of detail in data collection emerged as important as there is a need to express population-level outcomes, which is not currently done.</p> <p>1.3 Issues with employees not using ES</p> <p>1.3.1 UWGG completed an internal survey of ES proficiency and found that almost half of the organization ranked themselves as “Beginner/Novice” when using the ES</p> <p>1.3.2 The CII department was most problematic in utilization of ES</p> <p>1.4 Minimal to no utilization of the ES leads to UWGG not gaining value from the ES</p>	
2. Plan 6/2013- 7/2013	<p>2.1 The CII departmental representative and the primary researcher identified areas where the ES could be integrated into the a core practice – Program Investment Practice</p> <p>2.2 After rank ordering each action by importance and urgency, we identified two actions: (1) Add dashboard functionality to the ES to support user access to information in the ES (2) Add web portal functionality to support the volunteer portion of the PIP</p>	
3. Implement 8/2013- 12/2013	<p>3.1 The primary researcher identified the types of dashboard that the department would need with input from representative</p> <p>3.2 The primary researcher created the dashboards for each social issue area and a dashboard to assess the current status of the program investment practice.</p> <p>3.3 The primary researcher worked with</p>	<p>3.1 The primary researcher began the setup of the volunteer web portal</p> <p>3.2 ES functionality issues would not allow the system to work in accordance with expectations</p> <p>3.3 Group determined to scrap the volunteer web</p>

	the representative to show her how the dashboards worked and what to do if issues arise in the future	portal as the functionality was not supported
4. Evaluate 1/2014- 3/2014	<p>4.1 Dashboards received well in the CII department</p> <p>4.2 Dashboards shared organization wide after its successful rollout in the CII department</p>	<p>4.1 The ES would not allow the volunteers to easily access the information in the system in the same manner that CII specialists would</p> <p>4.2 The primary researcher and representative determined that the system would not work in the way they intended.</p> <p>4.3 Decided to postpone the transition to the volunteer web portal</p>
5. Reflect (Specify Learning) 1/2014- 4/2014	<p>5.1 The primary researcher created the dashboard manual to add to organizational knowledge</p> <p>5.2 Data specialist created 'Breakfast Bytes' – bi-weekly morning meetings to discuss how to use ES and to encourage ES utilization</p>	<p>5.1 Upon reflection of the failed volunteer web portal, we identified Power structure between UWGG and volunteers</p> <p>5.2 CII department used alternative approach to provide volunteers electronic access to necessary documents – project management tool</p> <p>5.3 Nationwide ES user group determined that missing functionality is important and it is currently on list of updates to the system</p>

In the Diagnosing phase, the researcher must assess the current status of issues. In this study, as the focus of this research is on the role of IS within a process, the diagnosing phase took on multiple steps. The primary researcher mapped out the PIP process in order to understand it in detail and then identified the role of IS within the process.

In order to map the practice, we adapt the process modeling methodology of Newman and Robey (1992). In their study, they focused on social change through an information systems development process. The main concepts in their strategy for mapping processes are episodes and encounters. According to Newman and Robey (1992, p. 253), an “episode refers to a set of events that stand apart from others, thus signifying the end of one sequence of activities and the beginning of another.” Encounters signify the beginning and the end of an episode, where there is interaction between stakeholders. In their study, the researchers were focused on the *encounters* as they were the best opportunity for social change between two groups – users and analysts. Alternatively, in this study we focused on the role that IS plays within the Program Investment Practice, where the *episodes* as they are the best opportunity for IS to play a role. During these episodes, there is significant opportunity for the transfer and analysis of information. There are multiple stakeholders in this process – CI specialists, Partner Agencies, the IC, and the CIC.

Figure 6 displays the process map of the Program Investment Process from the interpretations of the interviews of the CI specialists. As suggested by Newman and Robey (1992), only critical encounters and episodes are included in this parsimonious

map. As such, not every single encounter or episode is represented in the process map as that level of detail would outweigh the benefits of a simple model. I developed the process map after analyzing the data collected. I validated the process model with the CI specialists to ensure that it was representative of the core elements of the real process. Within specific episodes, there are opportunities to capitalize on the ES functionality.

Encounter 1 is the beginning of the entire Program Investment process. The CI specialists begin by training the PAs on any changes in the application process, including changes to the web portal in which the PAs input their application or changes in the application requirements. ***Episode 1*** is where the CI specialists make the application available to the PAs through the web portal of the ES. The PAs have access to previous year's submissions as well as detailed instructions on how to complete the current year's application.

Encounter 2 is where the PAs interact with the web portal in order to input their application information into the ES. ***Episode 2*** provides an opportunity for a change in the process. CI specialists expressed an interest in a way to increase transparency in the process as well as improve the seamless submission of information into the ES.

Encounter 3 is where the PAs interact with the web portal to submit their application information into the ES. There are actually two sets of information being submitted at this time. The current year's new application is submitted and the mid-year actuals are submitted into the ES. ***Episode 3*** is where the information the PAs submitted is made available to the CI specialists. Currently, an administrative assistant downloads

the information from the ES and stores it on the public share drive in order for the CI specialists to access the information. Many expressed an interest in improving this aspect

Encounter 4 is where the CI specialists have access to the PA application information. ***Episode 4*** contains a great deal of data analysis. The CI specialists expressed an overlap of data analysis needs where there is a great deal of manual calculations that occur. Automating some of these calculations is of importance to the group. Additionally, the mid-year information is used in the current year's application and currently there is a lag in the analysis of this information as the CI specialists must manually look up old information on a public share drive in order to input the information into a format for sharing with the IC.

Encounter 5 is where the CI specialist makes the application information available to the IC. ***Episode 5*** is where the Evaluation module of the ES can be used to make the application information available to the IC. Currently, the CI specialists and the Administrative Assistant create paper copies of the application and compile them into binders for the IC to evaluate the application. This process typically takes 1-2 weeks and requires significant resources (including paper and man-hours). Additionally, this method is not keeping sensitive information stored in a secured environment.

Encounter 6 is where the IC analyzes the application, with the data from the mid-year reports and any other historical information. There are numerous meetings with the CI staff where they all collaborate to evaluate the program. ***Episode 6*** is where the IC provides the evaluation for all programs. Currently this information is managed all manually.

Encounter 7 is where the IC and CI specialists come to an agreement on the ranking and evaluation of programs. ***Episode 7*** is where the CIC receives the information on the ranking and evaluation of programs.

Encounter 8 is where the CIC and the CI specialists discuss the ranking, evaluation, and funding recommendations. ***...Episode 8*** is where the final decision on the investments for the current year are made and inputted into the ES.

Encounter 9 is where the CI specialists will have to consolidate all of the evaluation information. ***Episode 9*** is where the CI specialists create letters to send to the PAs regarding their ranking, evaluation, and the funding that they will receive for the current year.

Encounter 10 is where the CI specialists send the compiled information to the PAs. ***Episode 10*** is where the information from the current year application is made available to the PAs, along with historical information.

Encounter 11 is where the PA has access to the web portal of the ES and interacts with it prior to entering the end-of-year information. This is where the PA submits the end-of-year actual numbers into the web portal of the ES. ***Episode 11*** is where the ES can provide analytical ability for the CI specialists to analyze the end-of-year actual numbers that the PA submits.

Encounter 12 is where the CI specialists have the PA end-of-year information for the previous year.

From the different interactions (meetings, interviews, trainings) that the primary researcher have had with employees and the various sources of data, the analysis

highlights certain contextual factors as having a significant impact on the derived business value of the ES in the Program Investment Practice. This understanding was gained from multiple perspectives of those involved which allowed us to gain a deep understanding of the practice and the issues that are present, highlighting the intersection of the stakeholders and the contextual factors.

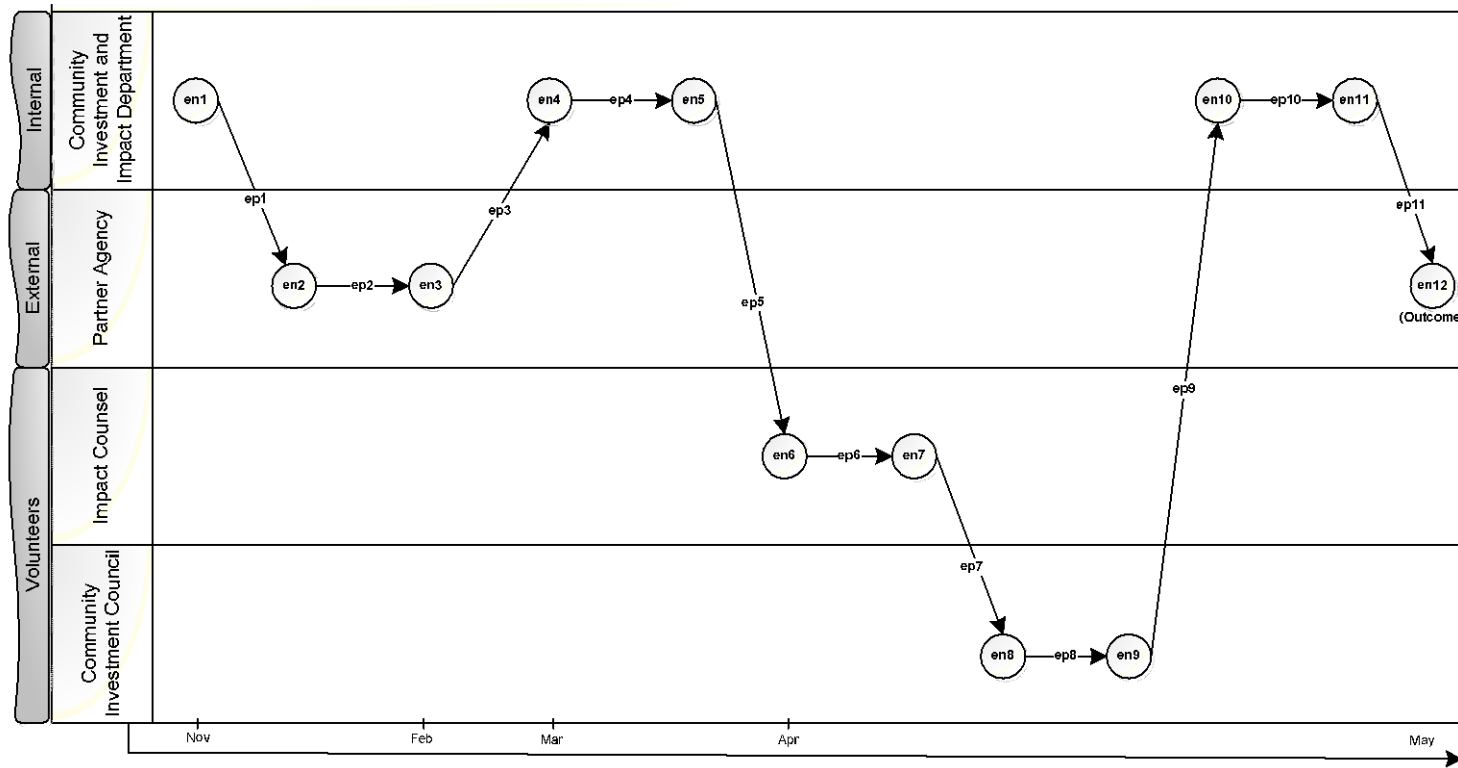


Figure 6. Process Map of UWGG's Program Investment Practice.
 en=encounter; ep=episode

Over many days of discussion, we identified two main actions that we would implement in order to integrate the ES into the PIP: (1) add dashboard functionality to the ES to support user access to information in the ES and (2) add web portal functionality to support the volunteer portion of the PIP.

Dashboards. We collaborated on determining the types of dashboard that the CII department would need and agreed upon two dashboards. The first dashboard would provide access to the kind of information that CII specialists would use on a daily basis. The types of activities that the specialists would use the dashboard for include looking up captured information on partner non-profit agencies and key volunteers. In line with UWGG's push to manage client information and organizational interactions more efficiently, there is also an area on the dashboard for the specialists to store detailed information on any communications or interactions that they have with external individuals and entities. As there are three social issue areas, the primary researcher created the dashboards for each social issue area. Figure 7 shows the Dashboard created for the Income and Resources social issue area.

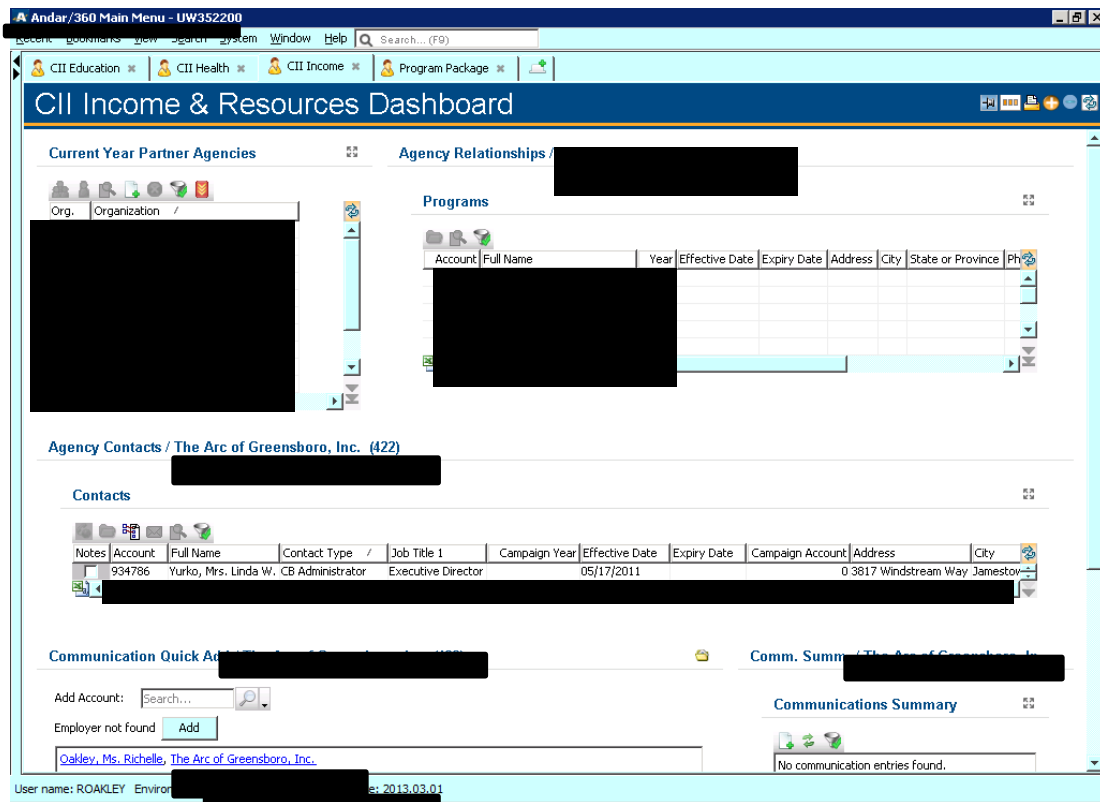


Figure 7. Example of ES Dashboard – Ongoing

The second dashboard, shown in Figure 8, would be used to assess the current status of each agency packages throughout the PIP. There are three packages throughout the PIP: new applications, mid-year, and end-of-year. As the CII specialist selects an agency and its related program, the other areas of the dashboard populate with the information for the selected program. The other areas include information such as what parts of the package are missing and provide a status bar with a percentage of how complete the package is. This dashboard was solely created for the CII department to assess the status of the packages without having to navigate through the ES.



Figure 8. Example of ES Dashboard – Program Package

After the dashboards were completed, the primary researcher worked with the senior CII specialist to show how the dashboards worked and what to do if issues arose in the future. Within the CII department, the dashboards were well received after being rolled out in one of the monthly departmental meetings. The specialists were

appreciative of the consolidation of access to information, rather than having to click through numerous areas in the ES in order to access basic information. As a part of the organization-wide effort to support access to data, the on-going dashboard was shared organization-wide after its successful rollout in the CII department. This allowed employees in different departments to easily access information related to the key volunteers and partner non-profit agencies that the CII department works with on a regular basis.

Volunteer Web Portal. As previously identified as an action, the primary researcher began the setup of the volunteer web portal. The web portal allows key volunteers access to the same information that partner non-profit agencies upload into the ES. The following quote succinctly sums up what we were attempting to implement:

...give the volunteers a login like we do the agencies, so they can SEE the application materials, but I understand that the Evaluation module also lets you score the applications online and it keeps a record of that.
-UWGG CII Specialist

Implementing the web portal functionality into the ES would significantly reduce the time and effort that CII specialists have in duplicating access to the information for the key volunteers. Unfortunately, as the primary researcher continued to set up the volunteer web portal, issues arose with the ES functionality that would not allow the system to work in accordance with expectations. For example, the web portal showed that there should have been functionality to provide access to reference documents in the package evaluation process. In the ideal situation, the volunteers would simply click on one of the many documents shown in the reference area and it would display the

document that is stored within the ES. However, that functionality was not available. The primary researcher contacted the ES help desk to assess how the issue could be resolved. It was determined that the desired functionality was still in development and was not widely available to ES users.

The CII department decided to scrap the volunteer web portal as the functionality was not currently supported in the ES. Therefore, the ES would not allow the volunteers to easily access the information in the system in the same manner that CII specialist could. The primary researcher and senior CII specialist determined that the ES would not work in the way they desired. The final decision was to postpone the transition to the volunteer web portal until the functionality was available. The following quote sums up this point:

...we cannot use the Volunteer Evaluation module [web portal] with uploaded documents as references, so we are not even going to try to do it yet this year. ... it's a software limitation. Not designed for uploaded documents to be used in application review, and unfortunately, we still depend on them.
- UWGG CII Specialist

Findings and Discussion

In the non-profit context, there are several contextual factors that impact the value that can be derived from IS integration and utilization. In accordance with much of the literature on IS implementations, simply integrating a system into an organization will not immediately result in benefits for the firm. The diversity of information that is involved in the Program Investment Practice is a contextual factor that impacts the value that is derived from the ES. Non-profit organizational performance needs to consider

both qualitative and quantitative information. The business value derived from the ES would be significantly increased if both types of information were able to be stored and analyzed. Currently the department uses Excel spreadsheets and Word documents to manage the vast data for the 62 programs. Incorporating the ES within the practice will allow for this complex data to be organized into a manageable set that could potentially be mined for trends and analytical purposes.

So managing all that information, not only the scoring but also the feedback because the feedback needs to be very detailed and the scoring also depends on the feedback, to some degree where for example to score as greatly as exceeding expectations in a certain area like the financials, they need to show two or three specific different distinct examples of how they are going above and beyond these listed expectations. So you need to know what those two or three examples are and document that umm you can't just say umm "well gosh they really run a tight ship!"

– UWGG CII Specialist

Issues of power stood out as a contextual factor that has an impact on business value of the ES. United Way has more power in the relationship with the partner agencies, as the PA are in need of funding and do not want to jeopardize that relationship. Therefore changes with the ES where the PAs are involved were relatively accepted as an area to improve ES utilization. However, United Way is dependent on the volunteer committees, the Impact Councils to provide their expertise and assist in assessing the quality of the programs. Thus, this quote highlights the difficulties in implementing changes to the practice when it concerns the volunteer usage of the ES, specifically through a web portal.

They would revolt I can tell you now. And [name redacted], cause she and I have been doing the work together this Spring, she actually mentioned it one day. And you would've thought that a bomb had exploded in there. They said we spend so many hours reading these applications as a volunteer you can at least print it out for us. And I was like I see that point of view I see that point of view you know. Can't we meet them halfway? They are doing a lot for us. So I see that and if that's what somebody prefers I get that. So I don't know what's gonna happen to them.

– UWGG CII Specialist

As mentioned in Chapter 1, research has shown that technology related skills are a contextual factor that non-profits face, in the culture of non-profits. The following quotes highlight how these technology related skills are not only present within the non-profit, but also amongst the various stakeholders that participate in the Program Improvement process. There are varying skills levels between the United Way employees, between the Impact Councils in each social issue area, and between the Partner non-profit agencies. This can greatly impact the business value derived from the ES as there would be a need for more intermediary steps in order to create a baseline of technology related competence amongst all groups.

...even if we don't have our volunteers all using it online if we can collect the information into [ES] internally and then print out what we need for those older volunteers

– UWGG CII specialist

One of my volunteers is putting the evaluation tool into Excel for us just on his own because he hated using that Word document [giggle]. And that is going to save a lot of time on its own even if we don't use the ES module.

– UWGG CII specialist

...we have a separate session on [ES] where they [Partner Agencies] learn to enter things on the website.

– UWGG CII specialist

To counteract the necessary technical skills, training becomes an essential part of the practice and the non-profit needs to foster a technologically focused culture. This is accomplished by reminding employees of the value of capturing important data and sharing within the organization to better manage the key relationships that exist.

For example, UWGG recently hired a Data Integration Specialist who is tasked with creating policies and procedures on how to maintain data within the organization. This specialist created 'Breakfast Bytes' in order to ensure that new and current employees were informed on the best practices when utilizing the ES.

I started Breakfast Bytes as way to train people on a regular basis and keep them updated on new or modified data policies.

It was slow at first, not many people were using [the ES]. Once the organization made a policy that all data should be entered [the ES] and all employees need to use it the attendance and interest increased.

The last four Breakfast Bytes we started using Interactive Learning Exercises to reinforce the training. I'm trying to address everyone's different styles of learning, hands on, demonstration, and following instructions. I've had great feedback on these learning methods. [Other employees] are doing Breakfast Bytes while I'm gone on Word mail and email merging.

– UWGG Data Manager

This effort coincided with our action research project, allowing for the dashboards and the directions manual developed by the primary researcher to be rolled out to the entire organization. Many of the specialists in the CII department expressed how helpful it was to have the dashboards because it made it easier to access the information and keep the information updated. Those outside of the department were also able to utilize the dashboards to identify the key volunteers, such as Impact Council members, in order to

reach out to them for special events and other efforts to preserve the relationship. The following quote is from an organization-wide email introducing the dashboards:

When you open [the ES], you will no longer have to worry with the main menu or search feature for almost everything we need. You'll be able to click on an Agency name and immediately see its Programs, Contacts (Executive Director, [ES] user, etc.), and your Impact Council members. You'll be able to get to any of those accounts you need to with one click. And it will be easy to log important communications with the agencies from the same screen. There is one dashboard for each impact area, and one to monitor package completion status
-UWGG CII Specialist

The UWGG employees were encouraged to make data management a part of their everyday activities. The dashboards created a sense of engagement with the data because they were able to see the information that was pertinent to their work on the dashboards.

We also learned from the efforts to implement the volunteer web portal. The volunteers were able to exert pressure on the CII specialists to reject any efforts to integrate technology into their work functions. Research has shown that power is a significant organizational factor that impacts the business value that is derived from IS (Cao, 2010). However, the CII specialists were able to find a work-around for the lack of functionality with the ES through implementing a project management tool to share documents with the volunteer Impact Council. This helped UWGG reduce the amount of printed materials that needed to be provided to the volunteers as they were now able to access it online. There was still significant work that was needed to be completed by the CII specialists to facilitate this online project management tool. UWGG uses virtual desktops which make it difficult to take data from the ES and upload into an alternate system. However, they were more willing to do a lengthy 'drag-and-drop' process rather

than created binders of printed materials. They are still interested in the updated ES functionality that would remove this intermediary step altogether. Even though some of the volunteer council pushed back and still requested binders, the majority of them were willing to use the project management tool to access the necessary documents.

At the conclusion of the project, we found that non-profits need to foster a technology friendly environment where employees are encouraged and empowered to utilize the system in the way that can best support their everyday work practices. This is where the organization can begin to generate value from the information systems that they have implemented. We also found that power struggles between the focal organization's employees and the volunteers they work closely with can severely moderate the value that can be gained from the technology. Interestingly, the volunteers were able to effectively coerce the employees into delaying (temporarily) technological improvements that would be beneficial to the organization. Table 5 summarizes the findings discussed above. According to Gregor (2006), theory on information systems can take on many different forms, ranging from analysis or explanation to prediction or design and action. What we provide is theory for analysis which is descriptive in nature. Descriptive theories are needed when nothing or very little is known about the phenomenon in question. This type of theory is critical to furthering IS research as they give rise to a description of categories of interest.

Table 5. Assessments of IS Business Value

Level of Analysis	Intervention #1 ES Dashboard	Intervention #2 ES Volunteer Portal
Individual-level	<ul style="list-style-type: none"> - Empowerment: Increase in confidence of specialists technical abilities to utilize ES - Engagement: Improvement in sense of ownership of data in ES 	<ul style="list-style-type: none"> - Empowerment: Increase in technical confidence of specialists to find alternative technological options
Process-level	<ul style="list-style-type: none"> - Data Management: Increase in communication logs - Client Management: Improvement in handling of touch-points with clients (donors, program directors, etc.) 	<ul style="list-style-type: none"> - Time Management: Reduced employee man-hours due to technological work-around and shifted man-hour cost to volunteers
Organization-level	<ul style="list-style-type: none"> - Organizational Knowledge: Knowledge shared organization wide with a significant reduction in silos of data storage 	--

In evaluating this action research study, readers should be able to assess the processes that are necessary in action research studies (Baskerville, 1999). Using the framework provided by Davison et al. (2012), this study used a number of instrumental theories to identify and examine the phenomena of non-profit IS utilization and focal theories to examine the influences and changes in the organization's assessment of IS business value. Through the successful integration of the ES in the PIP, there was a noticeable improvement in the department's ability to visually assess the process and better manage the interactions between the CI specialists and the Partner Agencies. Through the failed attempt to setup a web portal for the Impact Councils, it highlighted the power that external stakeholders (the volunteer group) can have over IS business value that can be generated by the focal firm. This is uniquely important to non-profit

organizations as a majority of the core business processes are supported and carried out by non-paid employees – volunteers. In sum, the findings of this study highlight how NPO generate IS business value and how that value is moderated by the contextual factors of power. These theoretical insights on the contextual factors that impact the IS business value generation process are a core requirement of action research studies. The key employees were closely involved in identifying the issues the firm faces, which actions are best apt to address their issues, and evaluating the success or failure of the changes that are made. The primary researcher and the department representative were closely involved in the progress of the research in order to support the actions that were identified.

The findings of this study highlight what has become apparent in IS research over the past decade. There is a serious need for in-depth examinations of the unique IS needs that are characteristic of organizations that operate in highly contextual business environments. These organizations can be identified as firms that have non-traditional conceptions of organizational performance. Recent examples include healthcare organizations (Hare, 2008), environmentally focused organizations, social enterprises (Richardson et al., 2014), and non-profit organizations. As technology continues to proliferate throughout society, many alternative business models and approaches will continue to develop. IS researchers can be on the forefront of these developments by engaging with these organizations and examining the impact of their contextual business environment on their needs. The impacts can range from system design to employee technology training. The context extends further than simply the industry (defined as a

particular form or branch of economic activity) that the organization is participating within. This context is closer to the core business of the organization, wherein those who choose to work in these types of alternative organizations are inherently different from traditional for-profit organizations and the nature of IS business value derived from technology investment differ as well. Further, focusing on alternative organizations can provide insight into the up-and-coming innovative systems that emerge, placing IS researchers at the forefront of understanding the business implications of systems rather than in hindsight.

Limitations, Contributions, Implications, and Future Research

As with many other forms of research, there are threats that can impact the results and findings. AR threats can be characterized into three categories: (1) uncontrollability, (2) contingency, and (3) subjectivity (Kock, 2004). The uncontrollability threat is that the researcher attempts to change the environment being studied without having full control over the environment (Kock, 2004; Susman & Evered, 1978). The contingency threat is that the results from AR may be inextricably intertwined with the contextual elements that are a part of the holistic organizational environment. The subjectivity threat is due to the “deep involvement of researcher” in the organizational environment, introducing “personal biases in the conclusions” (Kock, 2004, p. 269).

To address these threats, the action researcher can design the research endeavor appropriately to address these threats. First, the researcher can ensure to clearly identify the unit of analysis which will drive data collection and analysis (Kock, 2004). This action allows for external validity to be established as one can assess observable patterns

across the units of analysis. In this study, the unit of analysis were the instances of IS practices that were a part of the higher level Program Investment Practice (PIP). The units of data collection were the individuals and the technology involved in the PIP . The use of analytical techniques in analyzing the data also helped to remove the subjectivity of the researcher and provided internal reliability (Kock, 2004). Lastly, the researcher should engage in multiple iterations of the AR cycle to provide external validity to the study. The two actions that were attempted to integrate IS into the higher-level PIP can be viewed as multiple iterations of AR. Related patterns can be observed in different contexts and allows for the strengthening of research findings by building upon lessons learned in previous iterations (Kock, 2004).

For academia, this study is one of the few studies that examines in-depth the role of IS in achieving complex social goals, a unique form of organizational performance. Examining how various contextual factors impact the business value of IS has been expressed as an area of research interest (Barua et al., 2010; Kohli & Grover, 2008; Melville et al., 2004; Schryen, 2013). These contextual factors impact the IS business value generation process and this study examined it through breaking it down into intangible internal and tangible external value. In a smaller or larger organization, the changes and resulting process of reaping IS business value may represent itself differently. Additionally, the culture within the focal organization was one of resistance to change, slow-to-change, and high rates of turnover. To ensure that all those affected were able to adapt to the changes as well as ensure that firm knowledge was not solely held within individuals, integrating IS within the organization's practice required a great

deal of negotiating, documentation, approval, and training. Changes needed to be made and accepted within the organization first, before any changes can be made and adopted with regards to IS. The contextual factors of the alliances have an impact on the magnitude of the derived tangible external IS business value.

There are many areas for future research as a result of this study. In the non-profit industry, organizational performance is measured as impact on social issues through programs. There are many other external factors that can impact this type of organizational performance as well, thus minimizing the tangible external IS business value. Additionally, as non-profits align with other non-profits to impact change in the community regarding the social problems, organizational performance is moderated through these alliances. Examining the impact of these contextual factors on the IS business value generation process will provide theoretical contributions to IS literature.

This study integrated Process Theory and Practice Theory in order to examine how IS business value is generated and its relationship to non-profit organizational performance. Process theories are ideal for examining business value as it considers the sequential order of events that produce intermediary benefits to the firm (Melville et al., 2004; Schryen, 2013; Soh & Markus, 1995). We examined the process of IS business value generation where the connection between IS usage is connected to the organization's performance, as Schryen (2013) states "opening the grey box of IS business value." This theoretical insight is the first of its kind as extant literature has primarily examined IS business value in the context of for-profit organizations. Understanding the relationship between IS business value and the social goal-related non-

profit firm performance is one that is critical to the success of IS within non-profits. The results of this study provide details on how a change in IS usage prompts changes to the socio-organizational capabilities when prompt a change in the IS capabilities. The breakdown of the sequential ordering of the components in the IS business value generation process specifically in the non-profit organizational context is a significant contribution to IS literature.

Lastly, this study highlights how the chosen research methodology – action research – can be both *informed by* practice and *inform* practice. By being involved in the process of changing the organization's IS practices, the primary researcher was able to examine the sequence of events as the firm begins to integrate IS within its practices and result in the generation of value from the ES. The theoretical insights into the non-profit process of generating IS business value was only possible through engaging in close partnership with the organization in order to truly understand how it relates to the organization's performance. Action research has the potential to radically improve the relevance of IS research in industry as well improve the validity of the theories developed in the research process.

CHAPTER IV

STUDY 2: BUSINESS INTELLIGENCE IN THE NON-PROFIT ORGANIZATIONAL CONTEXT: CASE STUDY RESEARCH AT UNITED WAY OF CENTRAL CAROLINAS

Introduction

Business intelligence (BI) is a broad term that encompasses a great deal of business-related computational and analytical systems and processes. In a review of IS trends and management issues, Luftman and Zadeh (2011) noted that business intelligence is a high-priority for many organizations across the globe. Watson and Wixom (2007) describe BI from a data processing perspective where BI is “a process that includes two primary activities: getting data in and getting data out.” More specifically, they apply the term BI when referring to data that is extracted from a system and then used to make organizational decisions. Alternatively, Negash (2004) focuses on BI from a systems perspective where specific business tools combine traditional system-related concepts, such as “data gathering, data storage, and knowledge management,” with analytics to produce information critical for decision-makers. Though the term BI has been used in varying ways, a mainstay of its usage in IS literature focuses on its ability to take vast amounts of data from various sources and provide actionable information for managers.

Non-profits have begun to explore innovative applications of IS to tackle the complex social problems that they aim to impact. BI has emerged as a way for

organizations to perform analysis and prediction to gain a deeper understanding of its respective business environment (Watson & Wixom, 2007) and non-profits are capitalizing on these capabilities. Recent research has highlighted the theoretical insights that can be obtained by focusing on IT and examining the contextual nature of IT utilization in the social sector (Richardson et al., 2014). These insights can lead organizations to engage in strategic decisions that can support further attainment of organizational social goals. However, there is a lack of research on the role of BI in the non-profit business environment. This may be attributed to the origins of the term BI being firmly situated in business literature which primarily focuses on competitive actions and economic improvements of an organization. Alternatively, non-profits focus on impacting society by reducing the negative impact of reoccurring social problems. Examples of social problems include education inequality, chronic homelessness, or the negative impacts of poverty. These complex social problems continuously occur in society, require collaborative intervention by numerous actors, and are not easily resolved (Majchrzak, Markus, & Wareham, 2012). Making the connection between an organization's technological investments and usage with the non-profit's organizational performance is tenuous and difficult, and has also not been previously addressed in IS literature. However, BI proves to be particularly useful in this endeavor as its sole purpose is to improve decision-making and provide insight into areas important to the organization's performance

In this study, we adopt a process perspective of BI which entails a more holistic view of how organizations use innovative systems and analytic techniques to attain

insight into complex internal or external issues and identify action steps to improve the state of affairs. BI is not simply procuring special technology; it entails utilizing the technology to take action (Williams, Williams, & Consulting, 2003) towards improving the current state of affairs. Additionally, the benefits gained from BI are not instantly acquired. Many organizations invest in BI with the hopes of tangible benefits as a result of the initial investment sometime in the future (Negash, 2004). Further, these BI benefits can range from tangible impacts such as cost and time savings for related to data collection and analysis, to intangible impacts such as the “support for the accomplishment of strategic business objective” (Watson & Wixom, 2007, p. 97). These considerations in assessing the benefits of BI investments and utilization become especially important when the organizational context is different from the most commonly researched context.

BI in the For-Profit and Non-Profit Organizational Contexts

BI is a broad selection of various technologies, applications, and process that businesses utilize to gather, store, and analyze data to improve decision making capabilities (Wixom, Watson, & Werner, 2011). According to a 2013 Gartner CIO survey, analytics and business intelligence are the top technology priorities for businesses in the for-profit organizational context ("Gartner CIO survey," January 2013). Additionally, there is expected growth in the BI market from \$8.5 billion in 2008 to \$12 billion in 2014 (Wixom et al., 2011). The promise of the insight into current business operations and new avenues that BI can provide to businesses is great, including new forms of data visualization (Wixom et al., 2014), pattern recognition (Gillon, Aral, Lin,

Mithas, & Zozulia, 2014),” improvement of business processes, and support for the accomplishment of strategic business objectives” (Watson & Wixom, 2007, p. 97).

And just as promised, for-profit organizations have reaped the benefits of investing in developing their BI technology and capabilities. For example, Wixom et al. (2011) details the journey that railroad company Norfolk Southern began in the 1990s to develop the organization’s BI capability. It is notable that BI doesn’t happen overnight; it must be carefully and strategically woven into the core of the business and the culture of the organization, sometimes requiring a lengthy start-up time. IS researchers have suggested that BI, like many other technologies and analytical tools, will evolve and mature over time (Eckerson, 2007; Hostmann, 2007). This leads to why IS researchers have become increasingly interested in examining BI at these various stages and how it creates differential benefits for businesses in the form of sustainable competitive advantages.

Historically, the non-profit sector lags behind the for-profit sector in technological advancements. There are many factors that can be looked at as contributing to the lag, including lack of resources, pressure to spend a majority of donated funds on outreach activities, and a predominately rotating volunteer staff. Therefore, BI in the non-profit organizational context resembles the early stages of BI in the for-profit sector. Chen, Chiang, and Storey (2012) highlight three stages of BI and analytics, ranging from database management systems and structured content to more complicated web-based unstructured content to the he highly complex mobile and sensor-based content.

Using this conceptual framework, non-profits are typically at the first stage of BI and analytics, focusing on the collection, storage, and analysis of data from multiple sources. For example, Russell, Haddad, Bruni, and Granger (2010) describes a national non-profit's engagement with BI from inception to implementation and development, detailing the problems they encountered throughout the process. Unfortunately, there are not many IS research studies that solely focus on the prevalence and utilization of BI in the non-profit organizational context. This creates difficulty in understanding the role of BI in non-profit organization's social goal strategies, the areas where it would provide the most value. Thus, this study develops an approach to examining the value that non-profits derive from BI through the case study research conducted at UWCC.

We draw upon the concepts discussed in Chapter 1 of the knowledge-based view to provide a window into assessing the value of BI in the non-profit organizational context. As non-profits concentrate on developing improved knowledge on the social issues areas and what can impact change in those areas, it follows that concentrating specifically on the knowledge they create and apply would lead to the ways in which IS brings value to the organization.

Intellectual Capital as a Value Source

Over the years, researchers developed a theory of the firm in order to conceptualize what elements constitute an organization and how value-generating actions operate within and generate from the organization. As previously discussed, we put forth the notion that IS business value should be assessed using a knowledge-based view (KBV) of the firm, as opposed to the resource-based view. KBV allows for the

examination of firm-specific knowledge which can be applied in a unique way to create value for the organization. Knowledge is the primary means by which non-profit organizations are able to distinguish themselves and actively work towards impact social change in the community. Research on KBV (Grant, 1996; Nonaka & Takeuchi, 1995) supports the view that organizations are primarily focused on the “creation and application of knowledge”(Bontis, 1999, p. 440). This perspective allows for research to focus less on the resources available within an organization and focus more on the ways in which the organization utilizes its knowledge resources to achieve its organizational goals.

In an attempt to conceptualize a firm’s intangible knowledge resources, intellectual capital (IC) has emerged as particularly useful approach. IC is a term that has been applied to describe the intangible resources and assets that allow an organization to excel strategically. Stewart and Ruckdeschel (1998) define intellectual capital as intellectual material that has been transformed into a more valuable asset. Intellectual material includes knowledge, information, and experience which can be applied for wealth building (Bontis, 1998). Youndt, Subramaniam, and Snell (2004, p. 337) define intellectual capital as “the sum of all knowledge an organization is able to leverage in the process of conducting business to gain competitive advantage.” The sum of knowledge exists at multiples levels, including within and outside of the organization’s boundary. For non-profit organizations, the concept of wealth building or strategic advantage is more towards strategic efforts to impact social change on a social issue or problem.

Most research examines IC through three sub-dimensions: (1) human capital, (2) structural capital, and (3) relational capital (Bontis, 1998; Stewart & Ruckdeschel, 1998; Wall, Kirk, & Martin, 2003; Youndt et al., 2004). Human capital refers to the “skills, competencies, and abilities of individuals and groups” (Stewart, 2011, p. 2). The intelligence of the organizational members (Bontis, 1999) allows organizations to continually learn, innovate, and revamp their strategic efforts. This type of internal organizational knowledge stock also includes employees “innovativeness, attitude, commitment, wisdom, and experience” (Wang, Wang, & Liang, 2014, p. 234). Human capital is mainly centered on the organization’s internal people capabilities and competencies that are utilized to support the organization’s goals and carve out a competitive advantage.

Structural capital (also termed as organizational capital) refers to the “knowledge assets that are company property” (Stewart, 2011, p. 2). The mechanisms and structures that are embedded in the organizational structure are included in this sub-component of IC (Bontis, 1998). Examples of structural capital include “valuable strategic assets of organizational capabilities, organizational culture, routines, procedures, information systems, hardware, software, databases, company images, patents, copyrights, trademarks, [etc.]” (Wang et al., 2014, p. 234).

Relational capital refers to the “value of relationships with suppliers, allies, and customers” (Stewart, 2011, p. 2). More pointedly, relational capital (also termed as social capital) is the knowledge that is embedded in ex-firm association, produced from external organizational links (Bontis, 1998). Relational capital is an essential part of creating

value within the organization as it relates to how organizations connect “internal intellectual resources with external stakeholders” (Wang et al., 2014, p. 234). Altogether, the three sub-components represent the second-order concept of intellectual capital.

Studies have been conducted to assess the causal relationship between the three sub-components of intellectual capital (Bontis, 1998; Wall et al., 2003). We still have yet to understand the integrated nature of the relationship between the IC components and its resultant impact on performance. This study aims to use case study methodology to theorize on how non-profits generate value from IS through examining the sub-components of IC. Information systems has been shown to play a central role in organizational knowledge management processes (Alavi & Leidner, 2001). Understanding how non-profits utilize BI to support the creation and application of non-profit IC will highlight the business value of BI in the non-profit context.

Research Method and Setting

To assess how non-profits utilize BI and what value it brings to the organization, we conducted a qualitative case study at the United Way of Central Carolinas (UWCC) located in Charlotte, NC. Case study methodology is best employed when the research occurs in a natural setting, focuses on contemporary events, and is not supported by a strong theoretical base (Benbasat, Goldstein, & Mead, 1987). We aimed to examine the role of BI in UWCC’s efforts to achieve their social mission. The data collection methods included unstructured and semi-structured interviews and review of organizational documents. Table 6 shows the individuals that were interviewed and corresponded with via email. Collection of multiple pieces of data allowed for data

triangulation in support of the developed theory (Glaser & Strauss, 1967; Urquhart et al., 2010). This approach to data collection allows for the primary researcher to become intimately involved with the organization which allows for an insider's view of its inner workings. Data collection occurred from UWCC and from UNC Charlotte's Institute for Social Capital (ISC). The analysis of data involved integrating the collected data and the use of reasoning to establish relationships between the concepts identified in the research.

Table 6. List of Interviewees

<u>Role</u>	<u>Organization</u>	<u>Duration (min)</u>
Social Research Specialist	UNC Charlotte Urban Institute	75
Director Institute for Social Capital	UNC Charlotte Urban Institute	125
Vice President of Education, Engagement, and Communications	United Way of Central Carolinas	115

UWCC conducts an annual survey to identify issues that are important to their local communities. The survey results identified Education as the most important priority in the community. In 2011, UWCC began a pilot study in their Children & Youth social issue area to assess the collective impact that their programs were making in their community. This 10-year project is aimed at increasing the graduation rate for at-risk low-performing students. UWCC partnered with the University of North Carolina at Charlotte to utilize an integrated data system that would link data on individuals across multiple government agencies and program service providers.

The Role of Business Intelligence in UWCC's Collective Impact

Many non-profit organizations operate with the traditional approach that non-profits employ to impact social change by focusing on the benefits that can be gained through funding programs in a particular social issue area. United Way Worldwide (UWW) has encouraged all of its affiliate organizations to adopt a new model of social change – Collective Impact. Collective Impact involves coordinating efforts amongst a set of organizations to foster collaboration and focus on the same outcomes. More specifically, Collective Impact is a “systemic, data-driven approach to solving a complex social problem that involves a community wide group of organizations” (“Collective Impact for Children & Youth Baseline Report,” 2013). The organizations involved in the Collective Impact model must all share a common agenda, measurement systems, mutually reinforcing activities and relationships (“Collective Impact for Children & Youth Baseline Report,” 2013). Kania and Kramer (2011) highlight the potential impacts from a collective impact model including “heightened vigilance from multiple organizations” focusing on the same social issue, “rapid learning ... and immediacy of action” (p. 2).

UWCC decided in 2011 to adopt a Collective Impact model of social change. Collective Impact is a strategic approach to social change which focuses on a “concentrated and purposeful funding model” (“Collective Impact for Children & Youth Baseline Report,” 2013). A Community Needs Assessment was conducted and identified Education as the greatest need in their locale. More specifically, UWCC identified a goal to “increase the graduation rate for at-risk, low-performing students” (“Collective Impact

for Children & Youth Baseline Report," 2013). This required UWCC to engage in a 10-year long project to assess the performance of students (ranging from preschool to high school) who receive education-related services from 16 partner agencies.

UWCC partnered with the Institute for Social Capital (ISC), a unit within the University of North Carolina at Charlotte's Urban Institute, in order to engage in their Collective Impact effort. The ISC serves as the backbone organization by supporting and facilitating UWCC's Collective Impact efforts (Turner, Merchant, Kania, & Martin, 2012). More specifically, the ISC coordinates and maintains a shared integrated data system (IDS) that allows for the assessment of the long-term outcomes for partner agencies ("Collective Impact for Children & Youth Baseline Report," 2013). The ISC worked closely with all 16 partner agencies to improve their data collection efforts in order to support individual-level data gathering for the analyses that would take place.

The integrated data system that supports the Collective Impact effort is housed and maintained by the ISC. IDS must fit the following criteria: it must contain data from multiple agencies; it must have been developed as a general utility (not for any specific project); and it must involve individual-level record linkage. (Culhane, Fantuzzo, Rouse, Tam, & Lukens, 2010) The last criterion has proven to be the most complex and controversial aspect of IDS as it requires various levels of legalese to support this aspect of data collection.

As previously stated, BI refers to the process where data is extracted from a system and then used to make organizational decisions (Watson & Wixom, 2007). Figure 10 graphically depicts how non-profits engage in BI through the Collective Impact

process. The 16 partner agencies and the Charlotte-Mecklenburg School system provide a data deposit to the Community Database. The ISC provides UWCC with an aggregate-level report that speaks to the impact the agencies are having as a whole on the population of interest. The 16 partner agencies also receive individual reports that speak to the impact their programs are having on the community as well. Over the course of the 10-year project, UWCC will be able to develop deep insight into the education-related issues within the community and how their supported programs are impacting those issues.

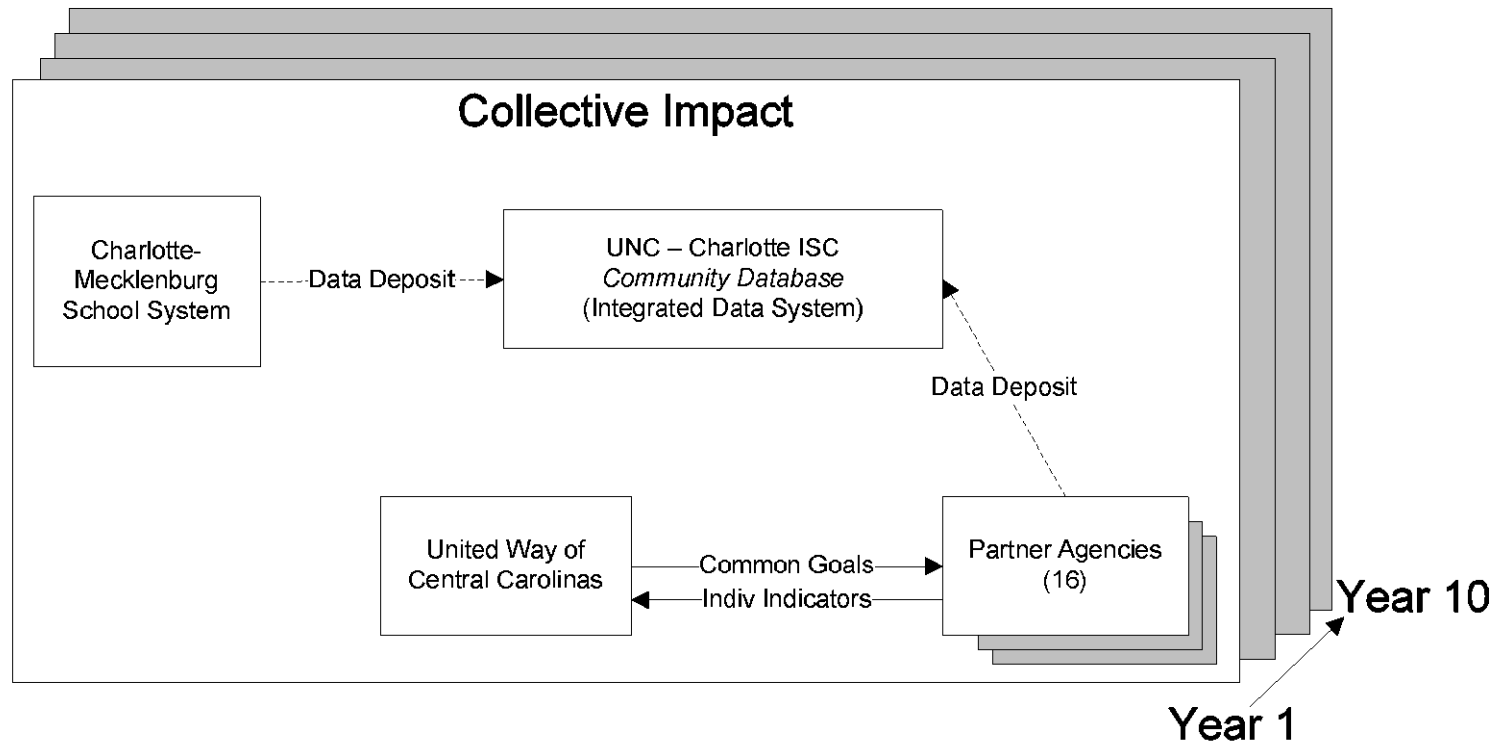


Figure 9. The Role of IS in UWCC's Collective Impact Social Goal Strategy

An example of how the data transforms into information can be provided through assessing UWCC's Logic Model. In working towards improving Graduation rates, UWCC focused on three subgroups within the Children & Youth focus area: Early Childhood, Enrichment, and Academic Supports. This concept diverges from other United Way affiliates that operate under the traditional three social issue areas of Education, Income, and Health.

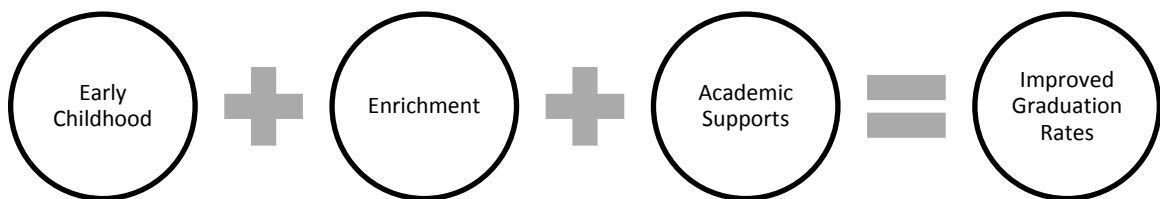


Figure 10. Collective Impact Sub-Groups – Reproduced from “Collective Impact for Children & Youth Baseline Report”, 2013

Within each sub-group area, there are a set of goals, outcomes, and indicators that drive the data collection and analysis approach. For example, in the Enrichment sub-group, one of the goals is to “Maintain or improve school attendance and behavior for students enrolled in United Way funded programs” ("Collective Impact for Children & Youth Baseline Report," 2013). The outcomes are the changes in behavior that UWCC strives for – the impact that the programs are having on the individual. Within the aforementioned goal, there are two outcomes, and each outcome has one indicator (or measure):

(1) Students have positive attendance records as measured by the # or % of students who have fewer than three unexcused absences and tardiness during the specified time period and

(2) Student behavior does not impede learning in the classroom as measured by the # or % of students without in-school and/or out-of-school suspensions during the specified time period. Once the ISC matches the individualized data from the programs to the data from the school system, they will be able to aggregate the data to show the impact that the funded programs (among other interventions) are having in the community. A graphic depicting the relationship between the data is shown in Figure 11 below.

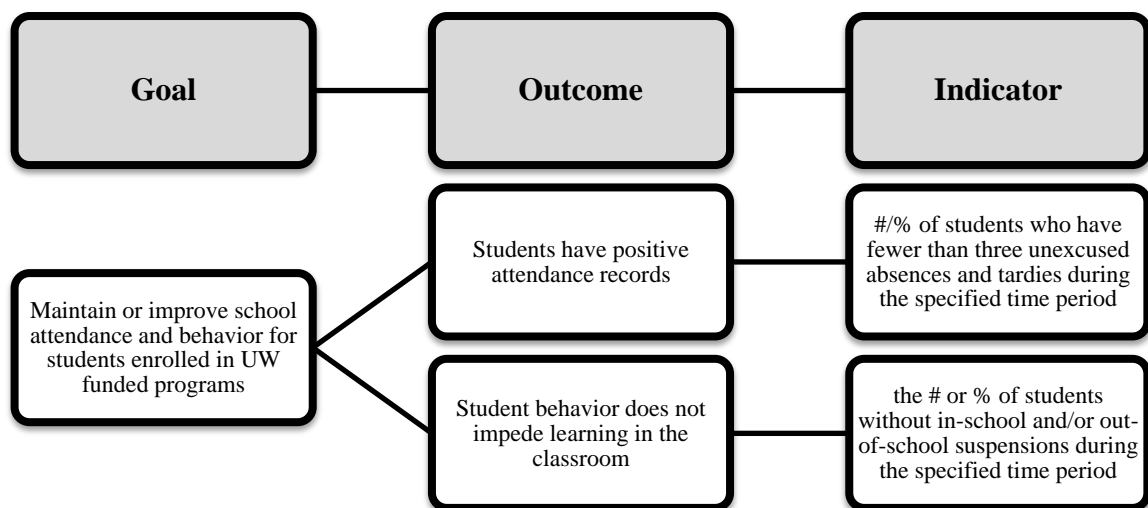


Figure 11. Goals, Outcomes, and Indicators – Reproduced from “Collective Impact for Children & Youth Baseline Report”, 2013

The aforementioned description and diagrams provide a detailed explanation of the Collective Impact social goal strategy and the role of BI within that process. UWCC engages with BI through getting data from multiple sources into the *Community Database*, analyzing the data, getting data out of the system regarding the actual progress

of individuals that participate in funded programs, and implementing any necessary changes as a result of the new information.

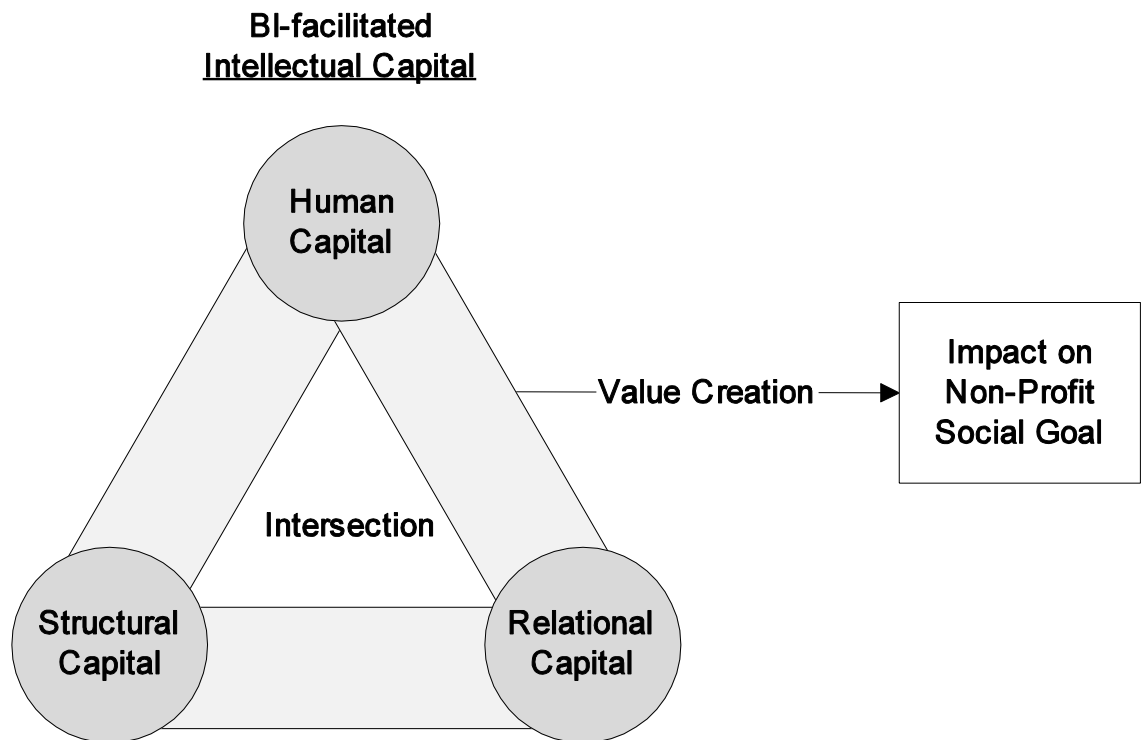
Findings and Discussion

In this section, we analyze how BI is utilized in UWCC's Collective Impact process from an IS business value perspective, supported with concepts from KBV and intellectual capital. Based on the analysis of the data from the UWCC case, we theorize the relationship between the intellectual capital components in the non-profit context of IS business value.

Organizational knowledge creation is essential for non-profit organizations as they are able to leverage that knowledge in the approaches that they employ to impact change in the community. Research on organizational knowledge creation highlights that it “involves developing new content or replacing existing content within the organization's [knowledge set]” (Alavi & Leidner, 2001, p. 116). We extend this definition further to include recombinations of existing knowledge which can also lead to new avenues of strategic actions for the organization. The concept of knowledge recombinations was originally applied in an innovation setting as discussed by Kogut and Zander (1992). In sum, knowledge creation in the non-profit context provides organizations value through how the knowledge is applied towards the non-profits social goal or mission. Through engaging in BI activities, non-profits are able to create value in the development of new knowledge, recombination of existing knowledge, and application of knowledge on targeted social problems. As previously discussed, intellectual capital is a form of tacit knowledge within an organization that uniquely taps

into the way that BI supports knowledge creation and application in the non-profit context.

The three sub-components of IC are human capital, structural capital, and relational capital. Each sub-component supports the value creation of non-profits by impacting the non-profit's social mission. Research has also shown that these three sub-components interact with each other in how they are created, developed, and leveraged (Youndt et al., 2004). It is not merely the existence of these concepts in a non-profit organizational setting but in how they are inter-related to create a unique set of knowledge assets for the organizations involved. The business value in non-profit BI utilization lies in the potential for how knowledge gained has been or can be applied towards the non-profits strategic goals. Figure 12 is a graphical depiction of the interaction between IC components in the value creation process for non-profits through supporting the development and application of strategic decisions that impact the non-profit's social mission.



**Figure 12. Intellectual Capital Value Creation Model –
Adapted from Kong and Prior (2008)**

BI-facilitated Human Capital at UWCC. As previously discussed, human capital refers to the skills, competencies, and abilities of the individuals of organizational members. Organizational members include those within UWCC and its partner agencies, as they operate as an alliance to impact change within the community. Through engaging in the Collective Impact approach, there was a noticeable change in the knowledge set of the organizational members. In order to support individual-level data analysis, each of the 16 partner agencies had to revamp the way that they collected data from their participants. In the past, the partner agencies collected data from service participants that generally addressed the goals identified by UWCC. The Collective Impact approach now

required the partner agencies to collect the exact same data for the same goals. The ISC had to send its researchers to each of the partner agencies to ensure that the data was being collected appropriately. In many cases, they provided technical support through creating spreadsheets and revising forms and applications to properly collect the necessary data points. The level of technical expertise required to engage in Collective Impact was outside of the knowledge set possessed by UWCC employees. Thus, UWCC partnered with the ISC to expand their knowledge set and improve the strategic reach of their initiative.

BI-facilitated Structural Capital at UWCC. Again, structural capital refers to the knowledge assets that are embedded within in the organizational structure, including intellectual property, processes, models, documents, artifacts and physical assets such as information technology and/or database systems. In the case of UWCC, the IDS supports UWCC's BI efforts and is the property of UNCC's ISC. However, the sole purpose of the ISC's *Community Database* (integrated data system) is to support an “increase in the community’s capacity for data-based planning and evaluation” (Nelson, 2013, p. 2). The physical assets aspect of organizational capital is an antiquated approach to understanding the role of information systems in organizational practices. In this study the entire Collective Impact approach is supported primarily by an information system – ISC’s *Community Database*. Yet, UWCC does not have any rights to the system itself; it doesn’t need to maintain ownership over the system. UWCC finds its value in the documents and artifacts that are a result of the systems application in their organizational setting.

BI-facilitated Relational Capital at UWCC. Relational capital refers to the “knowledge resources embedded within, available through and derived from a network of relationships” (Youndt et al., 2004, p. 338). This aspect of intellectual capital is particularly applicable in the non-profit context. The Collective Impact approach requires a high-level of collaboration with multiple entities across multiple systems. Any of the 16 individual partner agencies would not be able to, on their own, gather and analyze the amount of data that Collective Impact requires. It is in the unique combination of UWCC, its 16 partner agencies, and the ISC that they are able to achieve an in-depth analysis in to the communities that they serve. For example, UWCC was able to obtain visual mapping of the locations of their participants and programs and its relationship to child poverty ("Collective Impact for Children & Youth: Maps and Spatial Analysis," 2012). The ISC created maps and spatial analysis using data collected from UWCC’s partner agencies and a 2010 American Community Survey on 5-year Estimates of child poverty. The maps and spatial analysis provided UWCC with the knowledge that 41.8% of their service locations were in areas with child poverty rate over 30%, yet there were few program locations in areas that suffered from high child poverty (over 50%). Armed with this knowledge, UWCC can now strategize their actions to address these concerns, whether through advocating for more funding for these areas or supporting partner agencies to expand their service locations. This knowledge is not simply for UWCC but shared with the community, the partner agencies, and government agencies. Thus, UWCC gains value from investing and engaging in the BI process – the

high level of data collection and analysis which results in actionable knowledge – which is primarily supported by these inter-organizational relationships.

BI-facilitated Interaction between IC Components at UWCC. Engaging in a comprehensive BI initiative at UWCC has required the organizational members to further develop their skills, specifically related to identifying ways to measure the impact in their social issue area. There was a great need to interact with outside entities to better understand what data each party could provide and how the data would lead to the overall outcome of interest. For example, UWCC developed logic models that map targeted goals (aimed at the overall goal of increasing the graduation rate) to viable outcomes and measurement indicators for those outcomes. One of those targeted goals is to “increase [the] number of students who benefit from mentoring experiences.” The outcomes are that “Students have a positive experience with their mentor” and that “Mentors positively influence school-related behavior and activities.” To assess these outcomes, UWCC identified the following indicator: “#/% increase in attendance and positive school behavior of students who are assigned a mentor. The BI initiative required UWCC to request this information from the ISC, who then developed a data sharing relationship with the Charlotte/Mecklenburg School system in order to get attendance records on those students who receive mentoring services from a UWCC partner agency.

The focus here is not simply on the knowledge created by the individual UWCC or ISC employees or on the knowledge resources that are established through the network that is required in the non-profit BI process. The focus is also on the interaction between the two which enables UWCC to develop action-oriented knowledge. In the previous

example, if the results of the data analysis show that over time these mentoring services are improving school attendance rates, even amongst other extraneous factors, UWCC can strategize to improve other locales where these types of programs can make an impact. Prior to the BI initiative, UWCC only had anecdotal evidence that addressed the impact of mentoring programs. This type of targeted knowledge of the collective impact that a particular program has in a community is extremely valuable to the organization as it is directly connected to the social goal of improving the graduation rate.

Throughout the BI initiative, UWCC organizational members had to develop various documentation during the BI process that provided value to the organization and the community at large. As mentioned before, UWCC developed a logic model to map the social goals, outcomes and indicators that would drive the assessment of the Collective Impact effort. This documentation is different from the documentation that the ISC developed in the process. Through the BI initiative, UWCC was able to identify the common pitfalls and notable success that occurred while implementing the Collective Impact model. UWCC developed a process for identifying the overall social issue that they aim to address; identifying goals, outcomes, and indicators that address the social issue; identifying the entities that can provide data that supplements the assessments of program impact; and working with the ISC to build the relationships with those external entities and analyzing the data into aggregate form which provides meaningful information. Additionally, UWCC gains value from the utilization of ISC's Community Database. This system provides the capability of linking UWCC service participants with data retrieved from government entities.

Throughout the BI process, there was a great deal of knowledge sharing that occurred between UWCC, its partner agencies, and the ISC. Initially, UWCC met with their partner agencies to explain the Collective Impact initiative and discuss the potential benefits from more in-depth data collection and analysis. However, it was not initially determined that the ISC would have an integral role in providing technical assistance to the partner agencies as the state of their data collection methods was not up to par. As they progressed in the BI process, this deficiency was identified and appropriately addressed. Further, the outputs of the BI process, taking the form of text-based reports, data visualization maps, and spatial map analyses, all three organizational sets (UWCC, their partner agencies, and ISC) were provided with in-depth analyses on the impact of the programs at a collective level. For example, UWCC was able to identify the four high schools with the lowest graduation rates and analyze them further. They assessed a spatial map that compared the reading proficiency of elementary and middle schools that feed into those poor-performing high schools (Figure 13). This resulted in identifying that the reading proficiency of three out of the four high schools were below grade level. Another map highlighted the location of UWCC programs in the vicinity of those elementary, middle, and high schools (Figure 14). They identified at least two schools where students had low reading proficiency and where no UWCC programs were offered. This highlighted opportunities where UWCC programs could expand into, possibly redirect resources, in order to ensure wide availability of programs to those students in need. This BI-facilitated knowledge provided insights that tie directly to UWCC's high

school graduation rate social goal and enable UWCC to better strategize towards their goal.

Reading Proficiency in Elementary and Middle Schools Feeding Garinger, Vance, West Charlotte, and West Mecklenburg High Schools

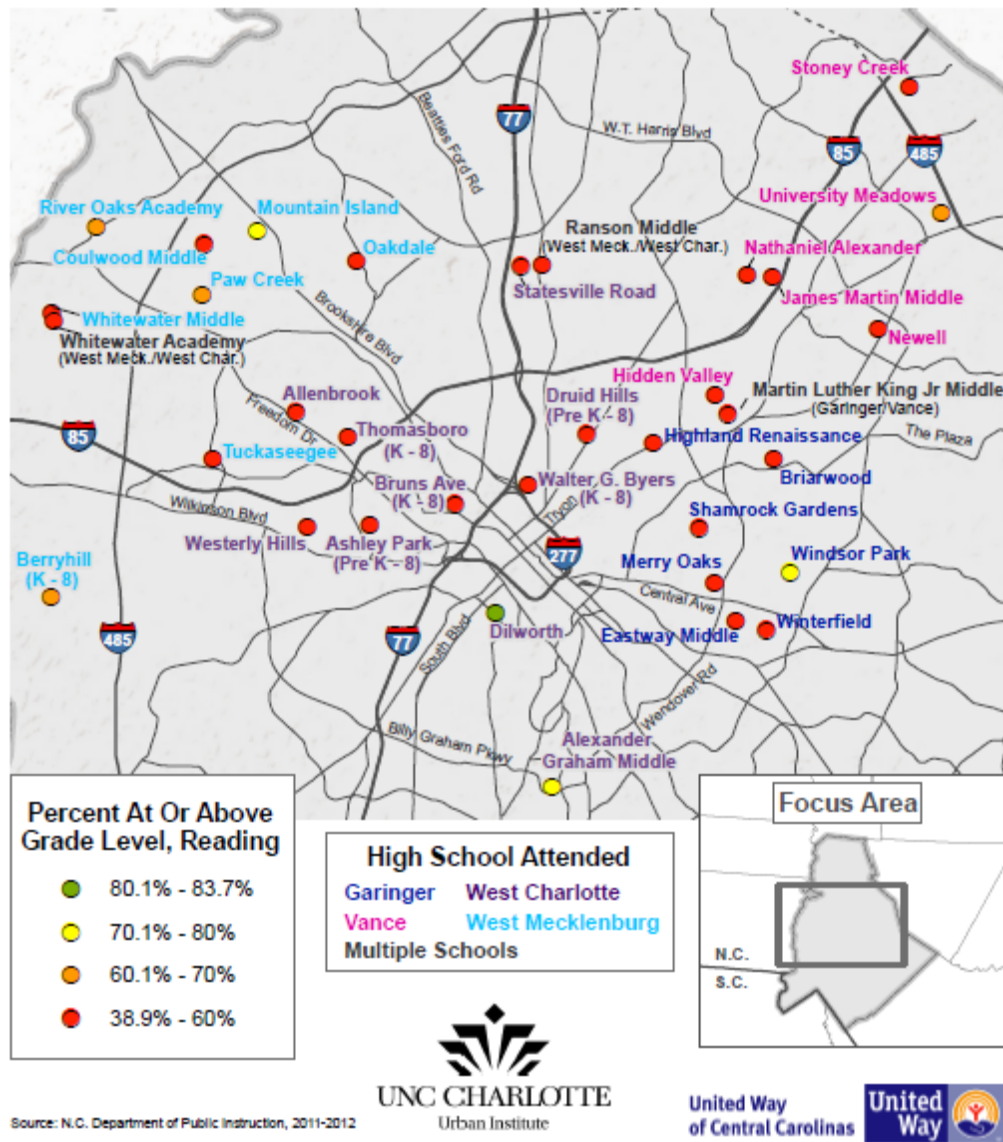


Figure 13. Reading Proficiency in Schools in County Areas Served by UWCC – Reproduced from “Collective Impact for Children & Youth: Maps and Spatial Analysis”, 2012

United Way Programs Located at Garinger, Vance, West Charlotte, and West Mecklenburg High Schools and their Feeder Elementary and Middle Schools

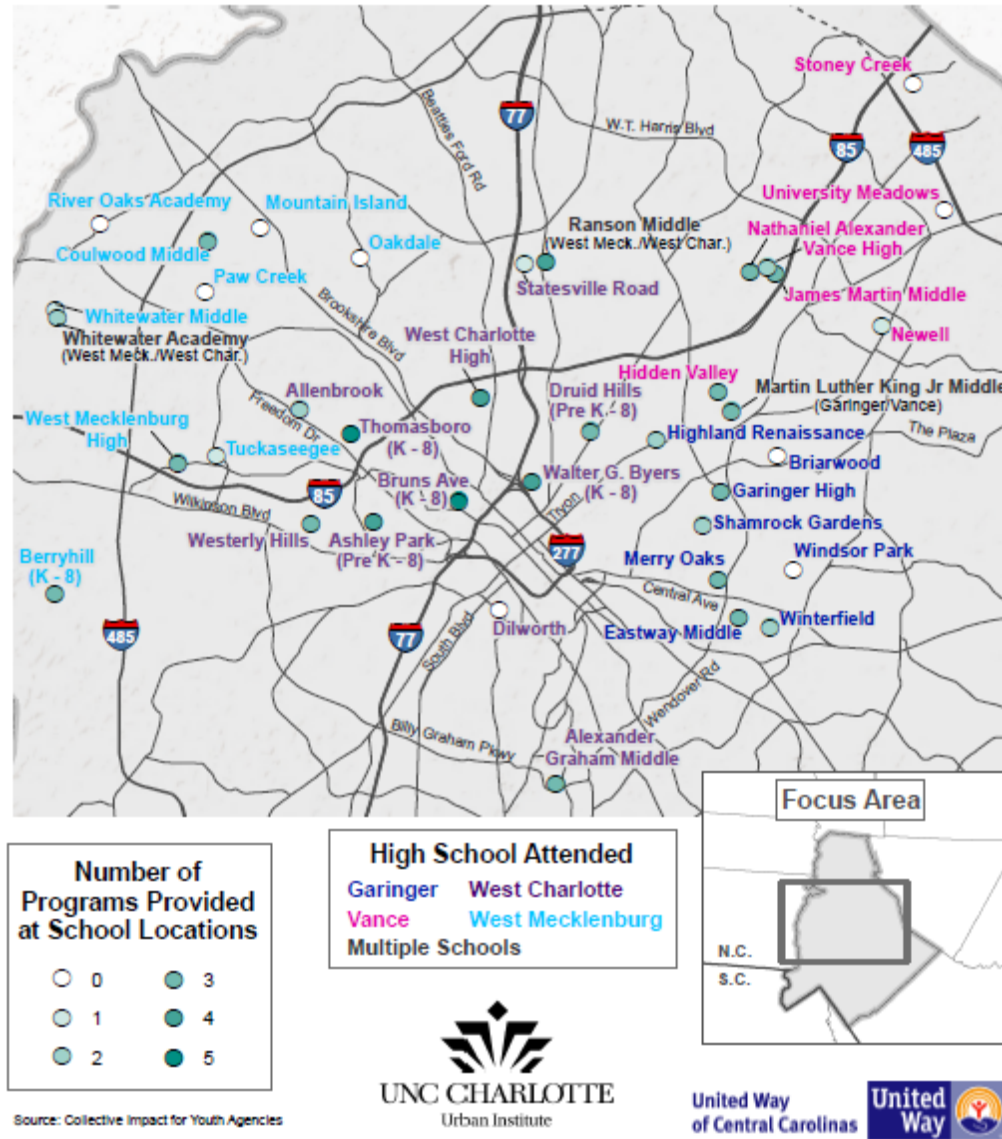


Figure 14. Spatial Map of United Way Programs by County – Reproduced from “Collective Impact for Children & Youth: Maps and Spatial Analysis”, 2012

This new knowledge enabled an alternative view of the education-related problems in the community and how collectively the programs are making a difference.

Table 7 provides a summary of the value that UWCC gained from engaging in business intelligence through its collaboration with the ISC. Utilizing the *Community Database* allowed UWCC to realize knowledge-related benefits that are critical to the improvement of the organization's social goal attainment. Figure 15 highlights how the intellectual capital developed and evidenced in UWCC's BI process fit within the value creation process. The impact on the social goals of UWCC illuminate how engaging in BI creates value through the development of unique intellectual capital.

Table 7. BI-facilitated Value Derived from Intellectual Capital Components

Human Capital (HC)	Structural Capital (SC)	Relational Capital (RC)
<ul style="list-style-type: none"> - Increases in Technical knowledge set of organizational members due to data collection requirements 	<ul style="list-style-type: none"> - Documentation development of Collective Impact process - Development of replicable procedures of Collective Impact process - Technology utilization of <i>Community Database</i> to support BI activities 	<ul style="list-style-type: none"> - Strategic partnership between UWCC and ISC - Technical advisory relationship between ISC and partner agencies
Interaction		
<ul style="list-style-type: none"> - Data sharing protocols are established by ISC between UWCC partner agencies, and government agencies - Engaging in key relationships developed between entities that are all invested in the overall outcome - Actionable knowledge is developed from the results of the data analysis - Collective Impact Logic Models are created and shared internally and externally - Community Database provides actionable knowledge of the impact of UWCC programs 		

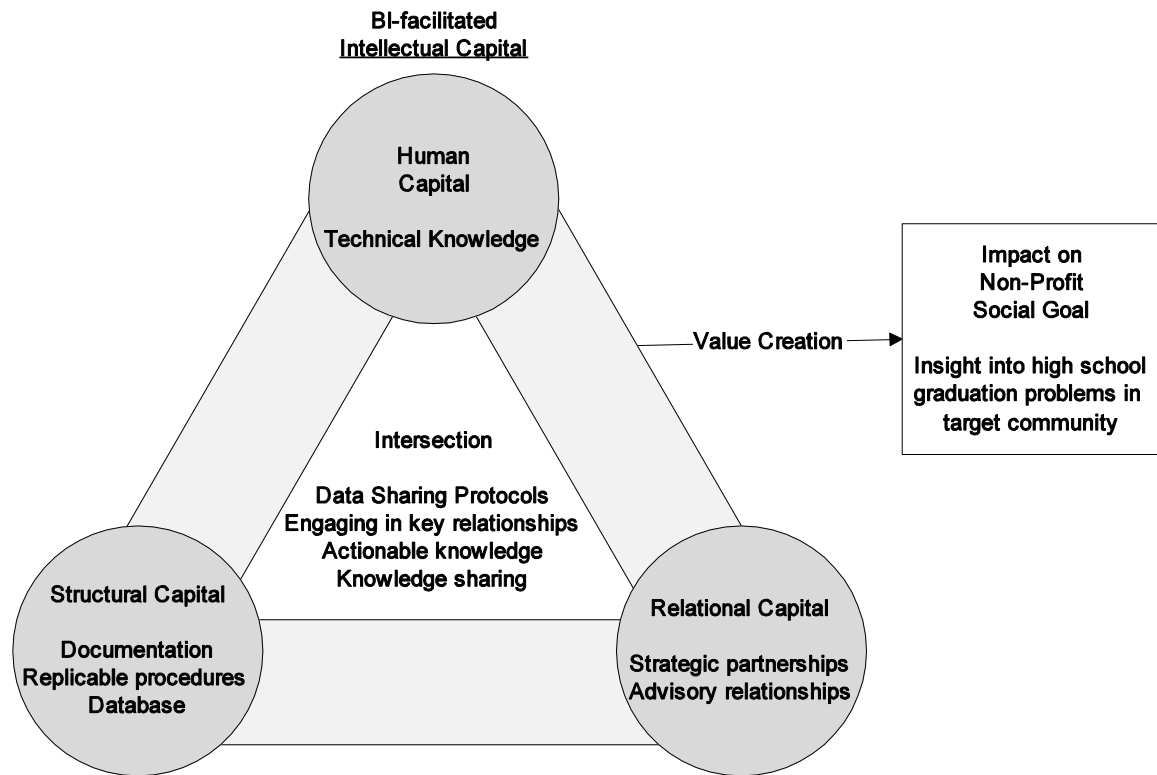


Figure 15. UWCC Evidenced IS Business Value Creation Model

Limitations, Contributions, Implications, and Future Research

All research has its limitations. In this study, the limitations revolve around the usage of one organization to develop a theoretical approach to understanding how BI contributes to non-profit IS business value. Yin (2009) states that one case in case study research is appropriate if the case is an exemplary or revelatory case, where the case provides unique insight into the phenomenon of interest. We argue that UWCC is an exemplary case of the role of BI in non-profit social goal strategies, specifically how BI provides value to UWCC through its impact on developing intellectual capital.

This study provides significant contributions. This is the first study that takes an in-depth look at how non-profits utilize BI. Prior studies typically focused on how BI is created and supported in the for-profit organizational context. This limited the breadth of knowledge that was previously available as it did not take into account the contextual factors that are present in the non-profit organizational context. Factors such as a lack of “skillful IS workers” (Zhang et al., 2010) and limited budgets (Stringfellow) for technology initiatives are present in the non-profit organizational context and need to be considered in any IS evaluation. At UWCC, the BI initiative was made possible through a sizeable grant and collaboration with external IS workers. This is typical of many non-profit organizations and, prior to this study, had not been discussed in IS research.

This study also contributes by examining the impact on a non-profit organization’s intellectual capital as a source of value facilitated by information systems. We examined each of the sub-dimensions of intellectual capital and their interaction as evidenced through UWCC’s BI process. This study contributes to IS research by highlighting the potential for applying this framework in other organizational contexts in order to examine the impacts of IS from a knowledge-based perspective.

This study can lead into future research projects that examine the how the role of BI changes in the Collective Impact social goal strategy at different United Way affiliates and other non-profit agencies. There is the potential to more fully develop the theoretical understanding of how BI facilitates the development of intellectual capital across organizations that vary in size, budget, and social goal focus areas. Also, intellectual capital is only one of the many theoretical concepts that developed out of the knowledge-

based view of the firm. As this study is one of the first to examine IS business value from an alternate theoretical base, it leads into many other avenues that can be pursued within the knowledge-based view of the firm.

CHAPTER V

STUDY 3: COMPARATIVE ANALYSIS OF THE ROLE OF INFORMATION SYSTEMS IN SOCIAL GOAL STRATEGIES IN THE NON-PROFIT ORGANIZATIONAL CONTEXT

Introduction

In recent times, there has been renewed pressure on non-profits for operational accountability and efficiency (Lettieri et al., 2004) as a result of highly publicized charities that mishandle and abuse finances. Transparency in operating procedures, allocation of funds, and the impact of programs has become a priority for many non-profits. Additionally, advances in technology have provided ways for the public to be more well-informed on the business activities that non-profits engage in. Communities are interested in the long-term impacts that the programs they invest in are having on the community. This has created a need for a strategic shift in the ways in which non-profits examine the impact of funded programs in the community.

Non-profits aim to continually improve their efforts to make an impact in society. It is becoming necessary to continuously evolve in their approaches to achieve their goals. Understanding the role of IS in the process of assessing the impacts of funded programs in society is critical to ensure that non-profits are effectively utilizing the systems at their disposal. Through a comparative analysis approach, we illuminate the role of information systems in the process of assessing program impact. This study

focuses on two non-profits: United Way of Greater Greensboro (UWGG) and United Way of Central Carolinas (UWCC). These two affiliate organizations employ two different approaches to examining the impact of their programs in the community. Each approach utilizes a different information system which provides different benefits and has different challenges. United Way Worldwide (UWWW) has put forth an initiative for all United Way affiliates to transition to a Collective Impact strategy. UWGG was operating under a Common Outcomes approach (a pre-cursor to Collective Impact). This approach focuses on ensuring that all programs are generally working towards the same social goals.

UWCC has already transitioned one of its three social issue areas to the Collective Impact approach. Collective Impact involves coordinating efforts amongst a set of organizations to foster collaboration and focus on the same outcomes. More specifically, Collective Impact is a “systemic, data-driven approach to solving a complex social problem that involves a community wide group of organizations” (“Collective Impact for Children & Youth Baseline Report,” 2013). The organizations involved in the Collective Impact model must all share a common agenda, measurement systems, mutually reinforcing activities and relationships (“Collective Impact for Children & Youth Baseline Report,” 2013). Kania and Kramer (2011) highlight the potential impacts from a collective impact model including “heightened vigilance from multiple organizations” focusing on the same social issue, “rapid learning ... and immediacy of action” (p. 2).

In this study, we aim to examine the similarities and differences in the role of IS between the social goal strategies employed by UWGG and UWCC. In this effort, we

identify the potential benefits and significant challenges that UWGG may encounter when pursuing the IS strategy employed at UWCC. Through comparative SWOT analysis techniques, we are ultimately able to provide a prescriptive approach for non-profits aiming to transition from one strategic approach to another.

Comparative Analysis and SWOT Analysis

Previous research on information systems has used a comparative analysis approach to better examine the differences and similarities in technology offerings (Buonanno et al., 2005; Farzandipour, Sadoughi, Ahmadi, & Karimi, 2009; Robey & Sahay, 1996). For example, Buonanno et al. (2005) provides insight into enterprise resource planning (ERP) adoption by comparing small to medium-sized enterprises and large companies. Robey and Sahay (1996) assess the consequences of implementing geographic information systems in two county government organizations. Research on IS strategy has also engaged in this endeavor as it helps to identify the best approach for an organization to pursue (Recker, Rosemann, Indulska, & Green, 2009). Overall, comparative analysis provides a unique perspective into analyzing two organizations and the impacts of their usage of IS.

SWOT Analysis, which stands for strengths, weaknesses, opportunities, and threats, is an analytical technique that is used in strategic planning (Gable, Lee, Kwahk, & Green, 2007). The scientific rigor in SWOT analyses is found through the thorough data collection provided by individuals with a deep understanding of the organization and its environment (Gable et al., 2007; Jackson, Joshi, & Erhardt, 2003). For this study, the application of SWOT analysis was particularly applicable because it allows for concepts

to be explained in laymen's terms which allows for easier understanding of discussed issues with employees without a technical background. Additionally, the SWOT analysis provided guidelines for the necessary steps UWGG needed to take in order to transition there is strategy to a more in-depth data analytic approach.

Within the SWOT analysis of IS strategies, we focus on the data that is the key to the types of in-depth analysis the organizations are interested in and what the analyzed data can provide. According to Watson and Wixom (2007), a main facet of business intelligence is "getting data in" and "getting data out." Negash (2004) also pointed out the importance of taking action with the information that is retrieved from business intelligence tools. Thus, we focus on aspects of the data such as the architecture; the methods of acquisition, retrieval, and delivery; the security; and the governance. We also focus on what the data can provide to the organization in terms of impact on social goals, whether program-level or community-level. These comprehensive aspects of how the IS manages the data in the organization's social goal provides insight into the benefits and drawbacks of each approach.

Analysis of the Role of IS in the Social Goal Strategies at UWGG and UWCC

There is a relationship between the IS strategy that an organization employs and the value that the organization will derive from said information system. Research has shown that the improvements in IS business value is related to the extent that an organization's information technology is aligned with the business strategy (Tallon, Kraemer, & Gurbaxani, 2001). In the non-profit organizational context, the systems that are utilized are not necessarily the most up-to-date technology. As technology is not the

core business of many non-profits, there is less of a focus on investing in top-notch technology to support organizational goals. Non-profits focus more on how the technology supports their core activities, specifically in impacting change in the status quo within local communities. For these organizations, there is a primary focus on the strategies that will support the organization's goals and then an assessment of what technologies will need to be incorporated. Thus, the lack of focus on IS in non-profits brings forth a necessary evaluation of the role IS plays in non-profit social goal strategies.

In order to understand the role of information systems in the strategic efforts of UWGG and UWCC, we must first examine the general process that they engage in when assessing the impact of their programs. Both organizations operate under a general framework as provided by UWWW. There are three models that United Way affiliates typically engage in (shown in Figure 16):

- **Funding Programs** – Based on the quality of program initiatives, Partner Agencies receive funding and programs are evaluated by United Way. From a United Way perspective, there is low-to-no coordination in the programs or their outcomes.
- **Common Outcomes** – There is some level of coordination in program outcomes that are assessed in order to address impact in the community.
- **Collective Impact** – There is a high-level of coordination in program goals and outcomes which ultimately impact the community through program collaboration.

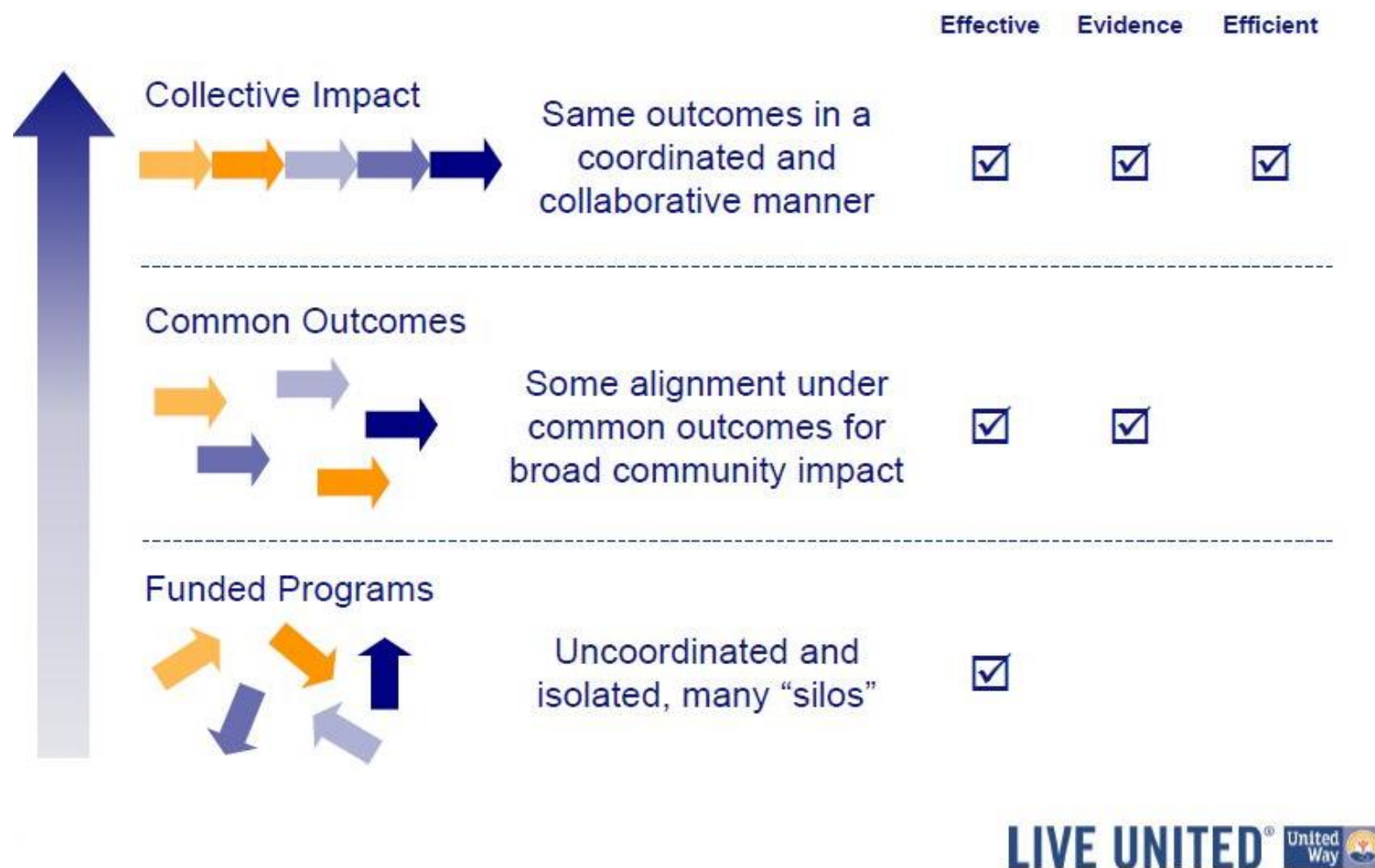


Figure 16. Conceptual Framework for United Way Social Goal Strategies – Reproduced from Wright (2013)

In this study we focus on the Common Outcomes and the Collective Impact strategies which are the strategies that UWGG and UWCC follow (respectively). Figure 17 shows a diagram of the strategic process that united Way affiliates engage in when addressing the impact of programs on social issues. The first step is to identify the social issues that are most pertinent to the community. Both UWGG and UWCC engage in this step through contacting community members to complete a survey that provides insight into the social issues that are most pressing for the community. Using the results of the surveys to provide guidance as to what social issues to focus on, the next step in the process is to identify the primary objectives, strategies, and indicators that will make a significant impact on these social issues. Both organizations collaborate with experts in education, health, and finance in order to determine the best approaches. Armed with the guidelines for impacting change in the social issue area, the organizations then allocate funds to each program that has activities that support the identified objectives.

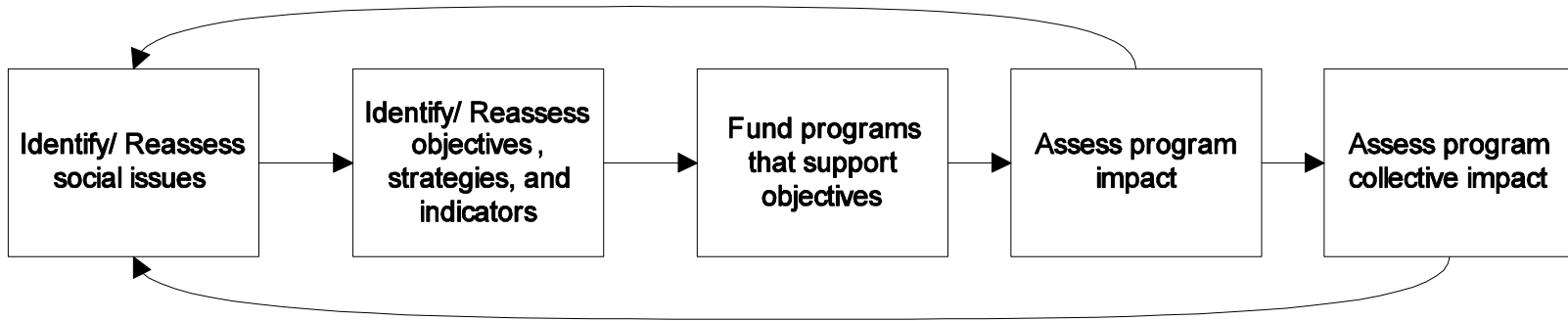


Figure 17. Process View of Non-profit Social Goal Strategy

The area where IS plays an integral role is the last two steps of the process. This is where the IS strategies of UWGG and UWCC differ, summarized in Table 8.

Table 8. Comparison of IS Role in Social Goal Strategy Comparison

	United Way of Greater Greensboro (UWGG)	United Way of Central Carolinas (UWCC)
Strategic Approach	Common Outcomes	Collective Impact
Key Information System	Enterprise System (ES)	ISC's Community Database
Data Sources (Education only)	11 Partner Agencies - 20 Programs	16 Partner Agencies - 15 Programs 1 Government Agency - Charlotte-Mecklenburg School System
Description	UWGG employees access data stored in ES and collate data to assess impact of programs on social goals on a high-level	ISC employees aggregate data deposited into Community Database, analyze, and report to Partner Agencies and UWCC on impact of individual programs
Impact Assessment	Program Impact	Program Impact Collective Impact

UWGG primarily utilizes their Enterprise System to support their social goal strategy, detailed in depth in Study 1. To assess the programs, UWGG developed a logic model which connects the data collected to the outcomes of interest. The data that UWGG uses to assess the impact of the programs are solely provided by the Partner Agencies. The data that is collected (indicator) is generally related to the outcomes through the strategies and objectives. The SWOT analysis (shown in Table 9) provides

additional insight into the role of IS in the Common Outcome social goal strategy employed by UWGG.

Table 9. SWOT Analysis - IS in UWGG's Common Outcome Social Goal Strategy

<p style="text-align: center;"><u>Internal Strengths</u></p> <ul style="list-style-type: none"> • Fully utilize the ES which is already a part of UWGG's internal IS structure • Data is stored within UWGG's internal IS structure • Data is governed by UWGG 	<p style="text-align: center;"><u>Internal Weaknesses</u></p> <ul style="list-style-type: none"> • Restricted to data architecture and analysis embedded in ES • Heavy reliance on self-report data
<p style="text-align: center;"><u>External Opportunities</u></p> <ul style="list-style-type: none"> • Minimal restrictions for partner non-profit agencies on data collection 	<p style="text-align: center;"><u>External Threats</u></p> <ul style="list-style-type: none"> • Alliance is only with the participating partner non-profit agencies • Cannot provide collective impact of programs in community

With regards to strengths, there are various favorable aspects of UWGG's utilization of their enterprise system (ES) to facilitate the assessment of their program's impact on organizational social goals. UWGG is able to fully utilize their ES which is already a part of UWGG's internal information systems structure. The employees are relatively familiar with maneuvering in the system and understand some of the nuances of the system. As discussed in Chapter 3, the ES of United Way affiliates are unique in that the ES is a 'donor-centric database system that manages the financial donations of individuals and organizations and incorporates various communication tools.' Additionally, the data is stored within UWGG's internal IS structure which allows

UWGG to secure and govern the data as UWGG retains ownership of all data entered into their system.

One of the weaknesses in the way IS is utilized in UWGG's Common Outcomes social goal strategy is that they are restricted to the format of data collection, storage, and analysis provided by the ES. As mentioned in Chapter 3, the ES that UWGG utilizes was developed by a former United Way affiliate organization. Therefore, the system is well mapped to the internal structure that many United Way affiliates share. However, the ES was primarily created to manage donation related information and the add-on modules are somewhat restrictive. For example, any customized reports that are needed by UWGG have to be created by the ES developer organization. During the AR in Chapter 3, we (the primary researcher and the UWGG collaborative team) encountered this problem when trying to manipulate reports from the ES to accommodate collective assessment of program impacts. The restrictions in the ES create problems when UWGG employees cannot freely implement changes to the data analysis tools (reports) without incurring a fee or reducing the number of available technical assistance time.

Additionally, the limited role of IS in the Common Outcomes social goal strategy creates a heavy reliance on data reported solely by the agencies that provide services or programs. There are no checks and balances in the data collection from the partner agencies. Additionally, there is no comparison of the data from the agencies to the identified outcomes of individuals. For example, if a student participates in a mentoring program, there is no data collected from the school system to show that there may have

been a decrease in absenteeism. This minimizes the ability of UWGG to speak to the impact that their program has on the community.

As far as external opportunities, there are minimal restrictions for partner non-profit agencies on the types of data that they need to collect. This is an opportunity because it allows the agencies, that specialize in their respective social issue areas, to create programs and collect data in a way that they best see fit. Currently, the ES collects data from partner agencies on a multitude of indicators that support specific goals and outcomes. This provides the agencies with more flexibility in their service offerings as opposed to being restricted to a more narrow set of programs that would provide the type of data that UWGG is interested in.

The unfavorable aspects of the role of IS in the Common Outcomes social goal strategy is that UWGG is only partnering with participating partner non-profit agencies. This limited set of data sharing relationships can hinder UWGG's ability to assess their impact in the community. There are a number of other stakeholders that provide services or track information on the individuals that receive services from UWGG. It would be beneficial to UWGG to engage with these outside entities to better assess the progress of program participants in the social issue area of interest. This is also a threat to UWGG because as other United Way affiliates are able to provide this information to their constituents, it will seem as though UWGG is not able to impact change in their community in the same way. This can lead to reduced funding and grant opportunities, a major driver for the financial stability of UWGG. In today's society, it is especially necessary for non-profits to speak more to the community-level impact that their multiple

programs are providing, and less on the anecdotal individual-level impact as in previous years.

Alternatively, the SWOT analysis for UWCC (shown in Table 10) provides insight into the role of IS in the Collective Impact social goal strategy employed by UWCC.

Table 10. SWOT Analysis - IS in UWCC's Collective Impact Social Goal Strategy

<p style="text-align: center;"><u>Internal Strengths</u></p> <ul style="list-style-type: none"> • High-level data analysis of program impact • Visual mapping of program collective impact 	<p style="text-align: center;"><u>Internal Weaknesses</u></p> <ul style="list-style-type: none"> • Major initiative required to engage in Collective Impact • Requires constant support for data sharing relationships • Requires time and technical investment in support Partner Agencies to set up appropriate data collection procedures
<p style="text-align: center;"><u>External Opportunities</u></p> <ul style="list-style-type: none"> • Alliance with local, state, and federal government agencies • Provide information to community on program impact • Outsource technical duties to a 3rd party entity 	<p style="text-align: center;"><u>External Threats</u></p> <ul style="list-style-type: none"> • No ownership of data • Security of data is a concern

For UWCC, the favorable aspects of the role of IS in their Collective Impact social goal strategy is that they are equipped with tools that allow a high-level of data analysis of the impact that their programs are making individually and collectively. For example, UWCC was able to determine that 52% of the approximately 8,500 program participants received services from one agency ("Collective Impact for Children & Youth Baseline Report," 2013). They were also able to determine that 60% of their program

participants attended a high poverty school ("Collective Impact for Children & Youth Baseline Report," 2013). Additionally, due to the increased integration of IS in the Collective Impact social goal strategy, UWCC is able to create visual maps of their program's collective impact. For example, from Figures 18 & 19 , UWCC was able to determine that their programs are located in the general vicinity of the areas (by zip code) where children living in poverty is the highest. However, they were also able to determine that there are minimal to no programs in the more rural areas where children living in poverty is also high.

Percent of Children Living in Poverty by Census Tract

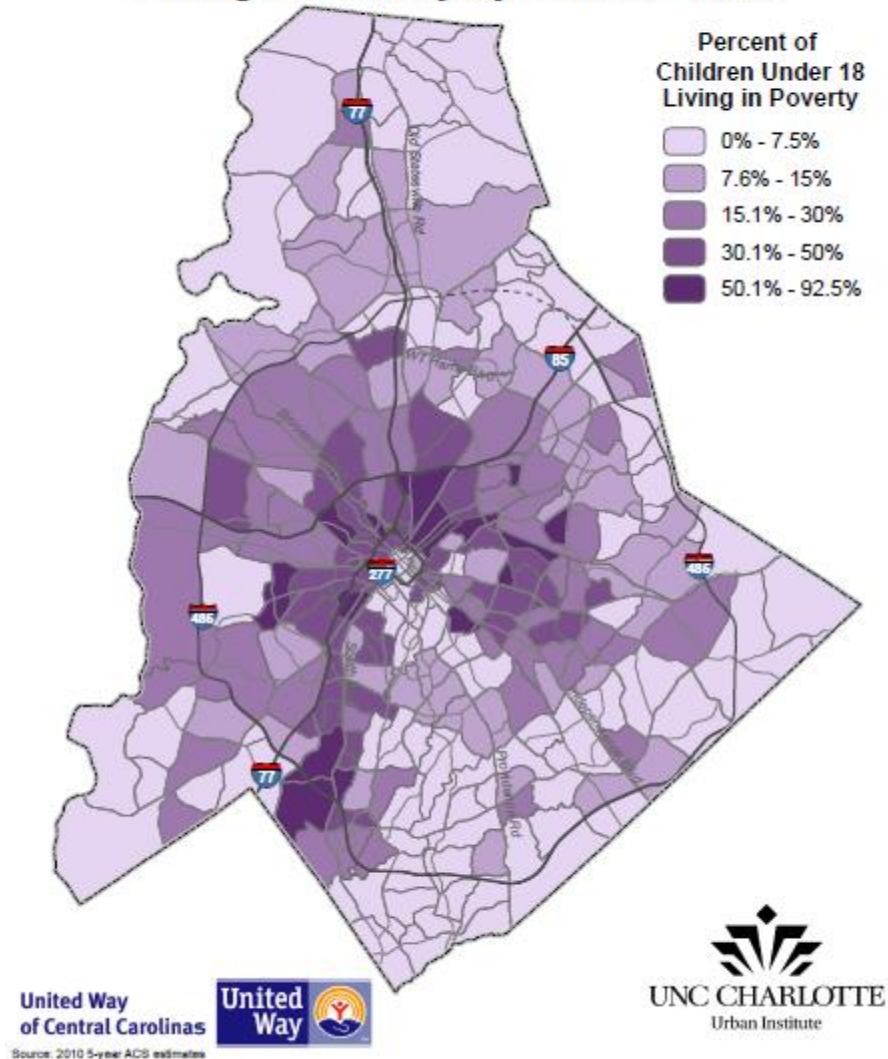
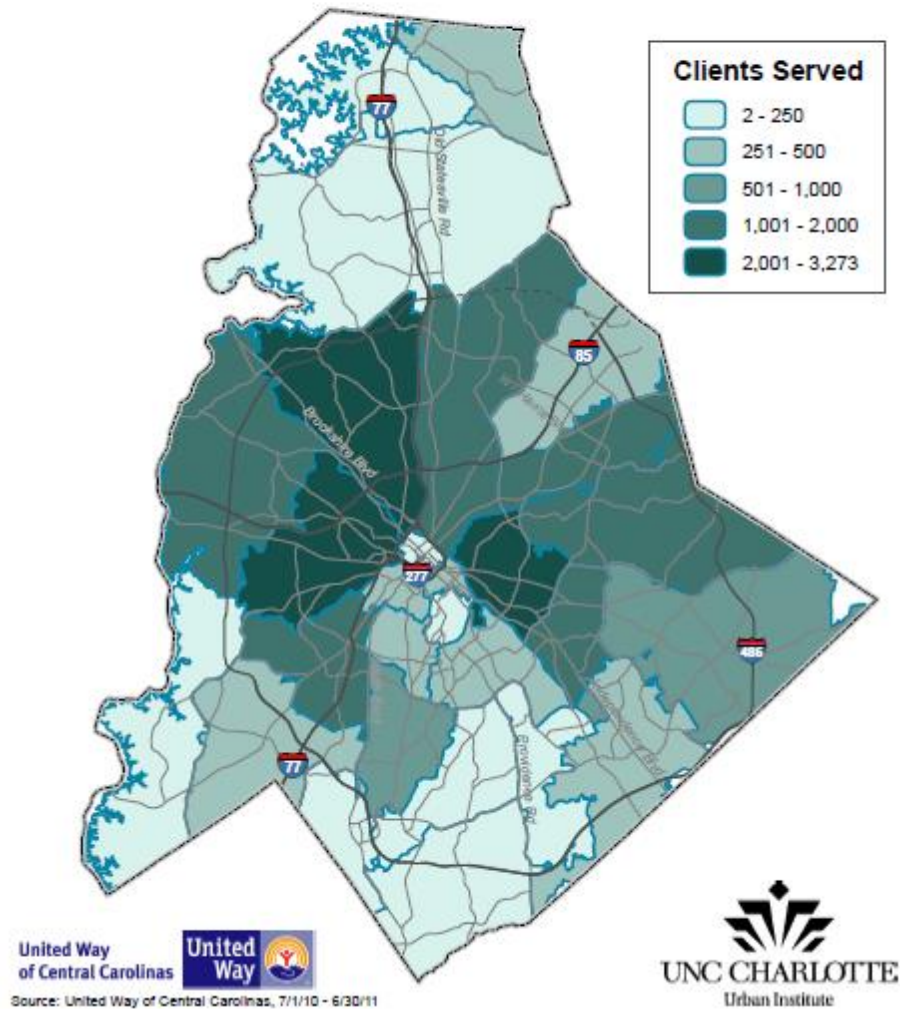


Figure 18. Percent of Children Living in Poverty – Reproduced from “Collective Impact for Children & Youth: Maps and Spatial Analysis”, 2012

Clients Served by Collective Impact for Children and Youth Programs By Zip Code



**Figure 19. Clients served by Collective Impact by Zip Code – Reproduced from
“Collective Impact for Children & Youth: Maps and Spatial Analysis”, 2012**

Unfavorable aspects of the role of IS in UWCC's Collective Impact social goal strategy is that there are significant investment needed to initially setup this approach. As discussed in Chapter 4, initially setting up the Collective Impact required significant investments, such as time, man power, and finances. Specifically looking at the IS, UWCC partnered with UNCC's ISC in order to access the Community Database, an integrated data system which housed all the data from the multiple entities. According to insights provided by the ISC, there were numerous challenges in matching the data from programs to the individuals that received services; in determining appropriate security protocols and governance levels for the sensitive, personally identifiable data; in acquiring, retrieving, and delivering data from and to the multiple stakeholders; and in the architecture of the database system which had to accommodate data coming from multiple stakeholders in varying formats.

Additionally, there is a need to constantly maintain and support the data sharing relationships that exist between multiple agencies. For example, the ISC has a data sharing relationship with each of the 16 agencies and with the Charlotte-mecklenburg School System. That is a total of 17 data sharing relationships that must be maintained for only one of the three social issue areas that UWCC focuses on. As mentioned in Chapter 4, this necessitates a significant investment of time and technical assistance by the ISC to the partner non-profit agencies to set up the appropriate data collection procedures. Ultimately, this drives up the cost for the initial and on-going costs for the Collective Impact social goal strategy for UWCC.

The favorable external opportunities include the development of alliances with the local, state, and federal government agencies. Government agencies on all levels provide services to participants and may be working towards the same goals as United Way and its partner non-profit agencies. Amongst this set of stakeholders, there is a vested interest in the types of data collection and analysis that the Collective Impact social goal strategy employs. Therefore, there is a significant opportunity for UWCC to align their interests with the partner agencies, the ISC, and government agencies, thus collaborating to affect change in social issues that plague targeted communities.

IS in the Collective Impact approach allows both UWCC and the ISC to share information on the impact that the programs are making in the community *with* those in the community. For example, the ISC provides website access (<http://ui.uncc.edu/data/partner/unitedway>) to various reports that analyze data from UWCC and other data sets from government agencies. These snapshots of information allow anyone in the community to independently access information that may be vital to requests for services, a push for additional funding, or justification for the creation of programs that address service gaps and needs in their local community.

Lastly, UWCC realizes the benefits of outsourcing their technical duties to a 3rd party entity. This is a significant benefit for UWCC as many non-profit employees are not technically skilled to develop and manage a massive data collection and analysis project. As mentioned in Chapter 1, non-profit employees are not “skillful IS workers” (Zhang et al., 2010) and view IS as useful, but complex and time consuming to implement. Thus, outsourcing the data collection and analysis to an outside entity

relieves UWCC from the complex IS tasks and allows them to focus on the substantive aspect (from UWCC's perspective) of the Collective Impact project – assessing the collective impact of the programs on the social goal issue area.

However, the utilization of a 3rd party entity to manage the IS in the Collective Impact social goal strategy also opens UWCC up to related threats. UWCC does not own the data that is stored and analyzed in the Community database. Therefore, all aspects of data management, including data privacy, security, and governance, is maintained by the 3rd party entity. For example, the ISC's *Community Database* links the individual program participation data to government related data, all highly sensitive information. This means that UWCC must fully vet the organization that they will partner with in order to ensure that the personally identifiable data is not at risk. Fortunately, the ISC has developed various data governance and data sharing policies that fully protect the data that is stored in the *Community Database*.

Findings and Discussion

The primary researcher was tasked with identifying what steps are needed for UWGG to engage in the Collective Impact social goal strategy, similar to the one in place at UWCC. The report that was submitted to UWGG is in the Appendix. Additionally, we were interested in understanding the role of IS in the non-profit's strategic approach when transitioning from the Common Outcomes approach to the Collective Impact approach.

The role of IS varies when comparing the Common Outcomes social goal strategy to the Collective Impact social goal strategy. As evidenced at UWGG, IS is integral to

the Common Outcomes strategy though the organization has minimal control over the way the data is stored. For example, when UWGG began transitioning to Common Outcomes, the terms ‘outcome,’ ‘goal,’ ‘strategy,’ and ‘indicator’ did not exist in their ES. The CII specialists repurposed certain fields and functions to mirror the type of data capture and analysis that they were interested in. This form of retrofitting IS to fit the needs of the organization can lead to issues when new employees come on board (typically often in non-profits), issues when analyzing the data and creating reports. Additionally, the ES is not setup to receive individual level data from the PAs, a critical aspect of the Collective Impact social goal strategy.

As evidenced at UWCC, IS is also integral to the Collective Impact social goal strategy. In fact, it is the central way for matching data collected on individuals from multiple stakeholders, such as PAs and government agencies. The ISC’s *Community Database* and the social research specialists at UNCC that analyze the data are the core of UWCC’s Collective Impact social goal strategy. For those that are interested in engaging in a similar initiative, there is a great deal to be learned from the setbacks that the ISC encountered in developing and maintaining the *Community Database*. Many of those setbacks were due to use of contract IS developers, rather than a dedicated individual. Since its inception, the ISC has hired a dedicated database administrator who will manage any modifications and ongoing updates to the *Community Database*.

Altogether, after examining the how IS is utilized in the social goal strategies in both United Way affiliates, we developed a model of the role of IS in non-profit social goal strategies (shown below in Figure 20). There are long-term IS relationships with external

government agencies and a 3rd party organization in the Collective Impact strategy, ranging from Year 1 to Year n, whereas the Common Outcomes strategy does not require that high-level IS utilization.

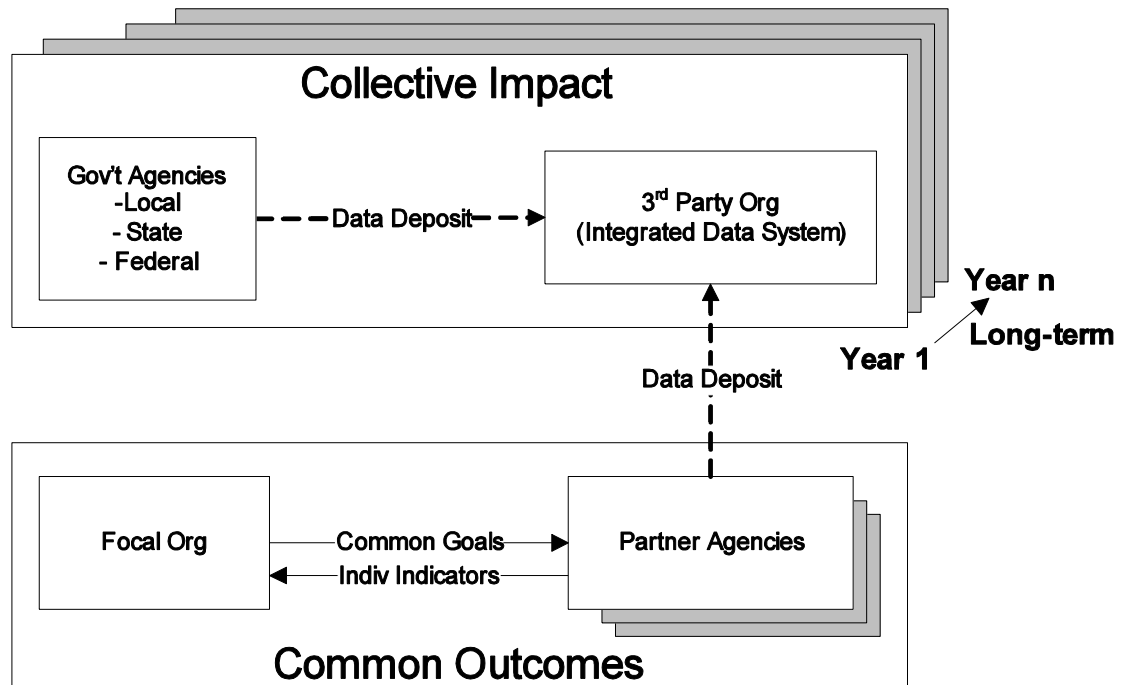


Figure 20. Role of IS in Non-profit Social Goal Strategies

For UWGG to transition to the Collective Impact approach, there are three main steps they must engage in: (1) Defining Common Outcomes, (2) Collecting Common Data, and (3) Analyzing Common Data.

Prior to beginning the strategic shift to Collective Impact, is to identify a high-level goal in each social issue area that will be the focus for the organization. This is the preliminary step that is needed in order to support collaborative initiatives by the Partner Agencies. There are numerous stakeholders that are involved in the Collective Impact

approach, including government agencies, 3rd party data management entities, and Partner Agencies. For example, UWCC's high-level goal is to "increase the graduation rate for at-risk, low-performing students." It is essential to involve many stakeholders in this process in order to ensure that it is relevant and attainable. UWCC utilized their annual survey to support the identification of this goal. UWGG also has an annual survey, *Community Cares*, which is an ideal resource for the identification of the high-level goal that UWGG will support.

Defining shared outcomes and measures is the first step in moving towards a Collective Impact Model. The 2013-2014 Program Investment process at UWGG is the baseline for the common outcome approach. The Community Investment and Impact (CII) Department at UWGG continue to work on refining this approach to ensure that Partner Agencies understand the importance of this approach and to ensure that they are measuring appropriately. The primary researcher highlighted to CII department that they would need to identify a small set of indicators that would be used to measure the outcomes and ensure that all programs are collecting the same data.

Collecting common data requires UWGG to use a shared data measurement system that has the capacity store the data that PAs collect from their program participants and related data from various government agencies in a highly secure and private system. Examples of government agencies include Department of Family and Child Services, Department of Social Security, School systems, law enforcement agencies, etc. Due to the recent changes in federal laws, such as the Freedom of Information Act, there are fewer challenges in getting data from government agencies.

The United Way of Greater Cincinnati (UWGC) collaborates with G*Stars (for employment programs) and Vesta (for Emergency Shelter & Emergency Assistance) to collect, manage, analyze, and report outcomes across multiple service providers using data from federal, state, and local levels. The primary researcher suggested to UWGG that they use a 3rd party provider to store and analyze the data to ensure privacy, security, effective management, and impartiality in the analyzed results.

As previously discussed, UNCC's ISC and its *Community Database* is an ideal resource for outsourcing data collection and analysis of common data. UWGG can utilize the system to collect various types of data from governments on a local, state, and federal level. UWGG's PAs can also submit their data to the ISC. The ISC employs social research specialists that can analyze and report to UWGG and its PAs aggregate-level data analysis on the impact that the programs are having in the community, supported with external data. Currently, the ISC is expanding the counties where they receive data deposits from and are updating their system to have more data visualization option available to the public.

The primary researcher also proposed that UWGG could create its own integrated data system that operates in a similar fashion to ISC's *Community Database*. This would occur most likely with external researchers, possibly in a university setting. This type of initiative would require significant financial support from grants and technical support from contractors for product development, as well as research support by some external agency for data analysis. For example, in 2011 UWCC contracted ISC to conduct the

Collective Impact study over a 10-year period and paid an initial cost of over \$170,000 with and an additional \$20,000 each on-going year.

Analyzing the common data is where the efforts in the previous steps pay off. The analyzed data provides insightful information on the effectiveness of evidence-based programs and services. The analysis also provides opportunities to consider increasing capacity for high-performing programs and revising funding strategies based on evidence of community impact. This approach greatly improves the quality of insight into the issues and solutions in a community as both qualitative and quantitative information is gathered and analyzed on program participants. A better understanding of the program processes is also gained as changes can be made as data is analyzed and information on impact is assessed. For example, in the first year of the 10-year Collective Impact study, UWCC has been able to prove that their program clientele are the neediest in their community. They received a descriptive baseline report that will allow for future measurement of changes (whether positive or negative) in their program clientele over a period of time.

The data analysis step can have a significant time lag of 6 months or more between when the data is collected and when the reports are produced. This time lag is primarily due to the amount of data clean-up and verification that is necessary, including cleaning the data deposits, matching the data to program participants, validating the data matching, aggregating the data, and gaining insight into what the data means. There are also oversight committees that ensure that no individualized data can be determined from the reports. However, this may only be present in certain data system setups. For

example, if using a 3rd party entity in the manner that UWGC does, there may be less oversight in the form of committees, such as ISC'S DAROC. United Way would have to identify ways in which to ensure high levels of data security and privacy regardless of the chosen data management option.

Guidelines for BI Practices in the Social Sector. The collaboration between UW, its 16 PNAs, and the BI Administrator allowed for new knowledge to be gained concerning the issues in the local community. UW was able to analyze where their supported programs were located with respect to the targeted population. They were also able to determine that students serviced by their programs were located in the areas with the highest poverty populations. These important insights into the business environment of UW could not have been gained without the support of its BI practices.

UW's initial success in engaging in BI practices can be looked at as an exemplar for other non-profit organizations that are interested in supporting the achievement of the organization's social goals through utilizing IS at a higher-level. As a result of this practical interest for non-profit organizations, we have identified four guidelines for other non-profit organizations that want to engage in BI practices to better support the achievement of the organization's social goals.

#1: Be Mindful in Selecting Your BI Partner Organization. Non-profits may not have in-house capabilities to engage in BI practices. Thus, it is essential to partner with competent 3rd party organizations that can provide BI services to non-profits. The BI Administrator has to be well versed in both technical details of databases and data management, but also in the contextual nature of the type of data that non-profit's deal

with. There are academic institutions, other non-profit agencies, and for-profit companies that specialize in providing these types of technology services to non-profit organizations. For example, another United Way affiliate collaborates with G*Stars (for employment programs) and Vesta (for Emergency Shelter & Emergency Assistance) to collect, manage, analyze, and report outcomes across multiple service providers using data from federal, state, and local levels. Regardless of the chosen data management option, non-profits have to identify ways in which to ensure high levels of data security and privacy. This is especially critical since many of the non-profit program participants are a part of vulnerable populations, including children and the elderly, and the sensitive data collected is on mental health checkups or behavioral issues.

#2: Learn the Best Practices in Data Management. Even though many non-profits may outsource their BI needs to expert 3rd party organizations, it is still advisable for those managing the IS initiative to support their social goal strategies to be aware of the best practices in data management. The non-profit organization has to provide assurances to those that are participating in the IS initiative on how the data, which is central to the social goal strategy, will be managed.

For those non-profits that decide to create their own IDS in order to support their social goal strategy, it is essential to have a dedicated database administrator that is tasked with creating and updating the system. Though non-profits are more interested in the results of the data analyses than in the mechanics of how the information systems operate, it is essential to understand the importance of properly setting up and

maintaining the system up front. The old adage ‘garbage in, garbage out’ is exaggerated when the information system is not properly planned out from the start.

#3: Understand that BI Practices Reach Beyond the Focal Organization’s Boundaries. It is important for large non-profits that are considering engaging in large-scale social change strategies, such as Collective Impact, to understand the reach of BI practices. In UW’s case, their decision to engage in a long-term BI initiative affected the Partner non-profit agencies they regularly collaborate with. The alliances that non-profits have related to their social goal strategies are impacted by engaging in BI practices. Therefore, it is essential for non-profits to be open with their intentions and include their strategic partners in certain aspects of the development and setup of the BI initiative. Taking into consideration the concerns of strategic partners up front can proactively address issues that may arise later on in the process. Overall, having a key individual or team that can serve as an assimilator of issues, assuager of concerns, and developer of action plans can ensure the successful roll-out of the BI initiative.

#4: Be Patient as it Takes Time to Reap Benefits from BI Practices. For many non-profits, the focus of their social goal strategy is to impact change in these social areas, non-profit organizations operate within a complex business environment characterized by a significant reliance on volunteers, collaboration with other non-profit organizations, and the pursuit of community-driven strategic objectives. More specifically, the impacts of the non-profits efforts can take many years to be realized. In a similar fashion, the efforts to engage in BI practices can take a while before the non-profit reaps its benefits. In the case of UW, the first year setup was to establish a baseline

to understand the characteristics of their target population. It was mostly descriptive in nature and helped determine that they were indeed focusing on the neediest in their local community. The future years will provide actual metrics of improvement in various areas related to improving the high school graduation rate. As such, non-profit organizations that are interested in engaging in BI practice must understand that it is as much a long-term IS initiative as it is a long-term social goal strategy. Patience is required to fully realize the benefits for both the non-profit and the target community.

Limitations, Contributions, Implications, and Future Research

As with all research, there are certain limitations that are present in this study. The first limitation is that the data collected and results are limited to the focal organizations. However, in qualitative studies the goal is to explain in-depth the inner workings of organizations in order to learn more about how organizational outcomes come to be. Further, this study utilized two organizations to better understand their strategic approaches and the role that IS plays in those strategies. Also, as the two organizations are operating under general strategic frameworks provided by UWWW, they can be looked at as two instances of UWWW. This adds to the generalizability of its findings as many other United Way affiliate organizations, who operate under the same general strategic framework, can utilize the findings of this study.

The contributions of this study are to both practice and research. For practice, this study provided detailed information to UWGG on favorable and unfavorable aspects of their Common Outcomes social goal strategy as well as the Collective Impact strategy. This allowed UWGG to fully understand what the organization has to gain by

transitioning to the Collective Impact strategy. This study also adds to research by highlighting the role of IS in non-profit social goal strategies. This study, and this entire dissertation, is one of the few research studies to analyze in-depth the role of IS in non-profits social goal strategies. A recent article in the Journal of the Association of Information Systems (Richardson et al., 2014) discusses the practical and theoretical insights into understanding the role of IS in non-profit strategies. This highlights the growing field of research in non-profits and the potential benefits from studying IS in that context.

This study also contributes through its usage of SWOT analysis in providing UWGG with insight into their current social goal strategy and into the future steps that the organization is interested in taking. IS research is most beneficial to academics and practitioners when it is grounded in core business concepts. Practitioners are able to immediately reap the benefits of it and academics are able to theorize on the relationships and interactions between the identify concepts and ideas.

There are numerous outlets for future research that result from this study. Using the results of the SWOT analysis, we will be able to identify concepts that can be converted into constructs. These constructs can be used to create a survey which will allow us to examine the relationships between constructs and assess the generalizability of our findings. We can also gain access to other organizations that are engaging in Collective Impact and use a different 3rd party organization for data management. It would be fruitful to examine the similarities and differences in how the role of IS changes in the Collective Impact social goal strategy as the type of 3rd party entity changes (from

an academic entity to a 3rd party entity). There is the potential to develop a theoretical understanding of how the data sharing relationships and data governance policies change based on the type of 3rd party entity.

CHAPTER VI

DISSERTATION SUMMARY AND CONCLUSION

Overall, this multi-method dissertation aimed to understand the contextual complexity of information systems in non-profit organizational practices and to examine how non-profits derive value from said information systems. We employed an alternate approach to examining IS business value through the usage of the knowledge-based view of the firm as the theoretical base. This divergence from previous studies provided us with an entirely new avenue for examining IS business value in the non-profit organizational context.

The research was conducted at two organizations: United Way of Greater Greensboro (UWGG) and United Way of Central Carolinas (UWCC). Study 1 employed an action research approach at UWGG where, through collaboration with key employees, practical solutions were developed to address issues faced by the focal organization. We focused on the utilization of the Enterprise System at UWGG and derived theoretical insights from their organizational practices through integrating IS business value, Practice theory, and Process Theory. The results of this study provided unique insight into how non-profit organizational practices can be changed to better integrate IS and the beneficial impacts that result from said integration.

Study 2 employed case study methodology to examine business intelligence (BI) practices at UWCC. By examining BI from a process perspective and theorizing on the value that is derived from the organizational utilization of a *Community Database*, we were able to understand how BI provided UWCC with unique and new knowledge on the impact of their programs that was previously unattainable. This new high-level of data analysis capabilities that UWCC is armed with allows the organization to more effectively assess the impact of programs in the community and more efficiently allocate funds to high-performing Partner Agencies to support initiatives that work.

Lastly, Study 3 provided a comparative analysis of the IS strategies employed at UWGG and UWCC. We examined the benefits and challenges of each of the organizational strategies and provide prescriptive insight into how non-profit organizations can transition towards better IS utilization. The results of this study provided insight into the favorable and unfavorable aspects of the role of IS in the social goal strategies of both UWGG and UWCC.

In conclusion, this three study dissertation provided a holistic view of the role information systems play in non-profit organizational strategies and how non-profits derive value from their information systems. We made contributions to the areas of organizational behavior and information systems specifically related to non-profit organizations. This dissertation is one of the first studies to examine non-profit IS work practices in situ, provide practical insight to non-profit organizations, and develop theoretical insights into how non-profits utilize and gain value from information systems.

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APPENDIX A

TABLE OF ACRONYMS

Acronym	Explanation
BI	Business Intelligence
CII	Community Impact and Investment Department
ES	Enterprise System
IC	Impact Council
IDS	Integrated Data System
ISC	Institute for Social Capital
KBV	Knowledge-based view of the firm
NPO	Non-profit organization
PA	Partner Agency
PIP	Program Investment Practice
RBV	Resource-based view of the firm
UNCC	University of North Carolina at Charlotte
UWCC	United Way of Central Carolinas
UWGC	United Way of Greater Cincinnati
UWGG	United Way of Greater Greensboro
UWWW	United Way World Wide